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UPOV

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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

TECHNICAL WORKING PARTY FOR VEGETABLES

Twenty - third Session
Avignon, France, July 2 to 6, 1990

REPORT

adopted by the Technical Working Party for Vegetables

Opening of the Session

1. The twenty-third session of the Technical Working Party for Vegetables (hereinafter referred to as "the Working Party") was held at Les Vignères, Cavaillon, near Avignon, France, from July 2 to 6, 1990. The list of participants appears in Annex I to this report.

2. Mr. R. Brand welcomed the participants to his station at Les Vignères, Cavaillon, and, in his capacity of Chairman, opened the session of the Working Party.

Adoption of the Agenda

3. The Working Party adopted the agenda for its twenty-third session which is reproduced in document TWV/XXIII/1 Rev.

Short Reports on Special Problems or Difficulties Encountered

4. The expert from The Netherlands reported on the administrative reorganization of variety testing, leading to the Center for Variety Research and Seed Technology (CRZ), on the difficulties encountered during the DUS testing of mushroom varieties, on the problems involved with the receipt of the first application for a vegetatively propagated tomato variety, on the application of advanced techniques in DUS testing and on plans to extend the list of families eligible for protection to the whole plant kingdom. A summary of his report on the different items is reproduced in Annex II to this report.

5. The expert from France reported that since May 11, 1989, the GEVES (Groupe d'Etude et de Contrôle des Variétés et des Semences) had changed its juridical structure and been separated completely from INRA. It was now the "Groupement d'intérêt public GEVES" with three shareholders: Institut National de Recherche Agronomique (INRA), the Ministry of Agriculture, Fisheries and Forestry, and GNIS (Groupement National Interprofessionnel des Semences).

6. The expert from Germany reported that in his country plans existed to extend the list of families in which varieties were eligible for protection to the whole plant kingdom. Actually, all vegetables, medicinal and aromatic species were eligible for protection. Difficulties in the classes for variety denominations had occurred between the class of Brassica pekinensis and the class with other Brassica rapa or Brassica oleracea varieties.

7. The expert from the United Kingdom reported that he had been informed that the technical work for the registration of all vegetable varieties for purposes of national listing and for plant variety protection would cease at the National Institute of Agricultural Botany at Cambridge in March 1991.

8. Mr. Van Ettekoven (The Netherlands) reported that in the EEC, during the last six to seven years, the umbrella program had been operative with the aim of reinscribing 111 old vegetable varieties with inscriptions improved according to the UPOV Test Guidelines. The work resulted in certain cases in separating the present umbrella varieties into three or four different varieties which in most cases had been given variety denominations starting with the present name of the umbrella variety followed by the figures 2, 3, 4, 5, 6, 7, 8 or 9. The EEC will produce a booklet describing all these varieties and giving their relation to the old umbrella varieties around the end of the year. The new varieties are effective as of July 1, 1990, but a time for adjustment of the national situation is given. In the new EEC catalogue of February 1991, the varieties will all appear under their new name.

9. The report on the first application for protection of a vegetatively propagated tomato variety led to a general discussion on the difficulties which would come up with applications concerning vegetatively propagated varieties in species where so far only seed propagated varieties had been tested. Plant material raised from tissue culture would lead to different expressions in several characteristics when compared to plant material raised from seed of the same variety. The reasons to seek protection for a vegetatively propagated tomato variety were mainly the ability to easily propagate and sell F_1 hybrids or F_2 or F_3 heterozygous plants of high agronomic quality and the resultant early harvesting, which would enable growers to profit from higher prices at the beginning of the harvest period. A danger was seen by the Working Party that propagation by tissue culture may possibly also change the genetics of the variety. Another problem concerned the way to compare similar varieties, both propagated by seed (F_1 or

open-pollinated) and vegetatively propagated, i.e. how to compare a plant from in-vitro culture to a plant from seed sowing in a DUS test. It was aware of the fact that the same problem also arose in other Working Parties, especially in ornamental species (as Pelargonium F_1 compared to clones). It therefore asked the Technical Committee how these cases should be treated. Three countries, France, the United Kingdom and Germany, were considering the matter at the national level and were invited to inform the Technical Committee of the outcome.

10. The Working Party, having discussed the problems which may arise in the naming of varieties of Brassica, proposed to the Technical Working Party for Agricultural Crops that it consider combining the present classes 5 and 6 in Annex I to the UPOV Recommendations on Variety Denominations (document UPOV/INF/12) into one class with respect to Brassica and into a second class containing only "Sinapis." Proposals for amendments should be sent to the Chairman before the end of September 1990. The Working Party would rediscuss the subject during its next session to consider whether a proposal of the above-mentioned kind should be made to the Technical Committee.

Report on the Twenty-fifth Session of the Technical Committee

11. Dr. M.-H. Thiele-Wittig reported on the main subjects of interest to the Working Party that were raised during the last session of the Technical Committee, referring for further information to the full report on that session which is to be found in document TC/XXV/11.

12. The Working Party considered the proposed wording of paragraph 6 of the technical questionnaire to be unfortunate. It therefore proposed to the Technical Committee to reconsider once more the wording of that paragraph and especially the heading of the second column. It proposed the following wording as a possible solution: "Characteristic(s) in which the candidate variety is different and how it differs." The Working Party considered that the wording proposed by the Technical Committee did not take into consideration the difference between the two varieties. There may be cases where the states of expression between the two varieties could be the same despite a sufficient difference for distinctness.

13. During its last session, the Working Party had proposed to the Technical Committee to consider the possibility of having a separate annex to the Test Guidelines with the different example varieties which would facilitate faster changes in the document due to the disappearance of certain example varieties without the need to make a complete revision of a given Test Guidelines document. After further discussion on the subject, the Working Party however renewed its previous position and finally agreed that it was no longer necessary to make that proposal to the Technical Committee as, whenever it considered it sufficiently justified to change the list of example varieties, this could be done through a revision of the document, without having to go into detail for changes of substance to the rest of the document.

Recommendations of the Technical Committee

14. Access by authorities of member States responsible for plant variety protection and testing to data held by the offices of other member States. The Working Party noted document TC/XXV/10 and paragraph 19 of document TC/XXV/11 in which the following questions were raised by the Technical Committee: "(a) which type of information was important for the Technical

Working Parties and (b) what would be the benefit of having that information available on-line." Mr. Grégoire (France), furthermore, completed the information by reporting on the recent discussions held on that subject during the last session of the Technical Working Party on Automation and Computer Programs. The Working Party finally concluded its discussion on this subject by confirming its wish to have access on-line, in order to read and to be able to copy part of information or to receive that information in electronic form on the following three subjects:

(i) final description of the variety prepared at the end of the DUS testing (which would have the advantage of access to that description earlier in time and being able to transfer it to one's own database);

(ii) information on the grouping characteristics of the candidate varieties under test;

(iii) information on the reference collection used in the different member States as, for example, grouping of the varieties, but excluding genetic information.

15. The Working Party stressed the importance of being able to transfer the variety descriptions from other databases as normally there would have to be secretaries employed to copy the information received in a printed form back to their national databases and then to proofread that information to avoid possible errors. Thus the accuracy of the information would be guaranteed, while saving cost and labor. The grouping characteristics of the candidate varieties under test were of high value for own tests. This information should also include candidate varieties which were under test only for national listing. Exchange of information of that kind would avoid or reduce the risk of duplicating a test, in case a breeder in another member State had already applied for protection or national listing under different reference numbers.

16. Combined Over-Years Analysis. Mr. Grégoire (France) gave a short explanation of different possibilities for the testing of distinctness and especially of the Combined Over-Years analysis, basing himself on documents TWC/VII/10 and TC/XXIII/4 Rev. Having also noted the results of the discussions on the Combined Over-Years analysis held during the last session of the Technical Committee, as reproduced in paragraphs 22 to 25 of document TC/XXV/11, and especially the request of the Technical Committee to apply, wherever possible, the Combined Over-Years analysis to vegetables species, the Working Party had a long discussion on these possibilities. It finally stated that in its field not so many characteristics would be measured and, if at all, only for a few species. In addition, very often the trials were very small, not reaching the minimum of 20 varieties for two years of tests or 10 varieties in three years of tests. The Working Party finally asked that the Technical Committee be informed that at the moment, for vegetable species, the significance level would have to remain open until further studies had been made. At present only some countries (three) used the Combined Over-Years analysis at an experimental level. In total, more time was needed to study the method. An additional problem in its field was that trials were often not randomized because most characteristics were not measured and therefore the data could not be used for the Combined Over-Years analysis. The Working Party would try and apply the Combined Over-Years analysis for measured characteristics in the beginning for carrot, faba beans, leek and onions.

17. Testing of homogeneity of self-fertilized and vegetatively propagated species. Mr. Grégoire (France) explained document TC/XXV/8 containing tables for different parameters for population standards, sample size, maximum number of off-types, and acceptance probability. The Working Party noted that the Technical Committee, as stated in paragraph 20 of document TC/XXV/11, had asked the individual Technical Working Parties to choose the most appropriate levels for each species when establishing new or revising existing Test Guidelines. It finally decided that it would follow this proposal. If the individual Test Guidelines were silent, that would mean that paragraph 11 of that document was applicable with an acceptance probability of 99% and a population standard of 1%.

Items for the Technical Working Party on Automation and Computer Programs

18. Mr. Grégoire (France) explained document TWC/VII/19 on Between-Center Standardization of Variety Description Scores Based on Continuous Measurements. The Working Party finally concluded that that document was not of very great practical importance for its work, as only few centers had results over several years. The Working Party preferred the fitted constants method for the selection of example varieties. It could not see an economical advantage of the new method over that method. In measured characteristics, distinctness was not based on a given state of expression, but on the difference between the two varieties concerned.

Minimum Distances Between Varieties

19. Mr. Grégoire (France) introduced document TWC/VIII/9 Rev. The first part of the document contained background information on the term "minimum distance," with the two key notions contained in the UPOV Convention, namely "clearly distinguishable" and "important characteristics" and on the development from the 2 x 1% method for distinctness up to the application of the Combined Over-Years analysis. Problems had arisen with the question of minimum distances in cases where (i) the LSD was smaller than the minimum distance; (ii) the LSD was larger than the minimum distance; (iii) the minimum distance had to be estimated from small data sets; (iv) difficulties had arisen in maintaining the same varieties; (v) difficulties had arisen in establishing distinctness in shape characteristics; (vi) minimum distances were established with the help of biochemical techniques; or (vii) multivariate minimum distances were established. Mr. Grégoire continued reporting on the discussions held on that document during the last session of the Technical Working Party on Automation and Computer Programs. During these discussions it had been made clear that minimum distance and LSD were two different things. As a result of these discussions, the expert from the United Kingdom had been asked to prepare a short summary of these discussions explaining that difference. That summary is included in document TWC/VIII/14, which was distributed during the session. The Working Party agreed to study the latter document further at home. It was of the opinion that it needed a good definition of the term "minimum distance" and for that purpose an exchange of views between breeders and national authorities would be necessary.

20. Dr. Thiele-Wittig introduced document TWA/XIX/8 Rev. on Technical Issues Arising in Relation to the Revision of the UPOV Convention and especially on minimum distances and the new concept of "essential derivation" proposed to be included in the UPOV Convention on the occasion of the present planned revision of the Convention. He mentioned specifically the different examples

included in the Annex II to that document and asked the technical experts to study the document at home and to inform their national delegates to the October session of the Administrative and Legal Committee on any different views or additional examples which they considered should be covered by the term "essentially derived." The Working Party, while appreciating the introduction of that term "essentially derived" in order to fight against plagiarism, was afraid that the introduction might lead authorities to accept smaller minimum distances for varieties. The Working Party stressed that that should not happen. In addition, the Working Party felt the danger that, if the decision on essential derivation were left to the judgement of the courts, that would have an influence on the work on the testing of minimum distances of the national authorities. If a court had the final decision, that would also lead to different decisions in different countries which would raise new problems for the breeders and users of varieties. In the field of vegetable species, so far, plagiarism had posed few problems. In vegetable species breeders would look for broader minimum distances between varieties as also stated during the last Workshop on the Examination of Varieties of Lettuce held in The Netherlands in 1988.

Testing for Bremia lactucae in Lettuce

21. The discussions based on circular U 1589, on document TWV/XXIII/4, on a letter from the Horticultural Seed Trade Association of The Netherlands, and reproduced in Annex III to this report, as well as on oral comments made by French breeders. The Working Party had a long discussion on whether in the variety description the presence or absence of Dm-genes should be indicated or only whether the variety was resistant to certain isolates. Although the draft as mentioned in circular U 1489 had intended to propose the use of the system of Dm-genes nomenclature developed by Dr. I.R. Crute, the Working Party finally gave in to very strong opposition from the Dutch breeders' side which was opposed to the mentioning of the Dm-gene component of the varieties. It finally agreed that it would be proposed that "Lettuce varieties should be described either as being resistant to specified isolates in relation with at least one Dm-gene component or as having at least the Dm-gene component ....." This amendment furthermore was complemented by placing the first paragraph of part 1 after that introduction and deleting the third one, by deleting in part 2 the word "European" and in the last paragraph of part 2 the Dm-gene No. 18, by including in paragraph 3 in the first line the Dm-genes 4 and 15 and by a few further changes in the Table 1, which would be made by the Chairman of the Working Party. The document would furthermore be completed by a reference to the articles by Dr. Crute as well as by Messrs. B.F. Farrara and R.W. Michelmore. The Chairman would also reply to the letter of Mr. Michelmore as reproduced in document TWC/XXIII/14. The new version of the proposal for the testing of resistance of lettuce varieties to Bremia lactucae with the above-mentioned changes would be circulated to the experts from The Netherlands, United Kingdom, Germany and France by the end of November with the request for any further comments to be sent by the end of January to the Office of UPOV. Thereafter, the proposal would be published as part of the Test Guidelines for Lettuce.

Disease Resistance Characteristics

22. The Working Party noted document TWV/XXIII/12 giving updated information on the inventory of diseases and strains of diseases for which obligatory testing is required in individual member States for resistant varieties, prepared by France on the basis of a previous document established for the

Working Party. The Working Party agreed that if resistance was used for the grouping of varieties, it was always necessary to test resistance. The Working Party furthermore discussed the problems of resistance to certain diseases not yet feasible in the country undertaking the test and whether, in certain cases, the results of breeders on resistance could be used. However, it reached no conclusions on these discussions. In order, however, to gain more experience it agreed to collect information on all resistance characteristics in national lists of varieties and norms of homogeneity for two selected species, tomato and French bean. Information on tomato would be collected by Mr. Brand (France), that on French bean by Mr. Van Ettekoven (The Netherlands). The expert concerned would, by the end of October, send the draft for a form for the collection of that information to UPOV, which would circultate it to the Working Party requesting answers to be sent to the respective experts by the end of January. The experts would prepare summaries by the end of March to be circulated back to the Working Party.

23. Mr. Van Marrewijk (The Netherlands) introduced document TWV/XXIII/11 containing a draft report on the meeting of the UPOV Pea Subgroup of November 7, 1989, and containing information to be added to the draft Test Guidelines for Pea. The Working Party agreed in principle to the resistance characteristics as listed on page 4 of that document. It would ask Mr. Green whether the lines or umbrella varieties indicated on that page could be replaced by example varieties. It furthermore, after quite some discussions, agreed to a change in the presentation of the host differentials which were indicated in the methods for the different characteristics which "may" be used for testing. That part of the method would furthermore be preceded by a sentence stating that the authorities which were interested in obtaining certain example varieties could do so at the following address, repeating always the address concerned. There had been a long discussion on the indication of the different host differentials, whether that indication should be recommended or whether it should only be mentioned that it may be used, as most host differentials were not varieties, but selections and noncommercial lines. But finally it was agreed that the different methods should contain the above information as an option only, it being understood however by the majority of the experts, that if the tests were done, they would be done with the host differentials indicated.

24. The Working Party asked for these methods to be included in the draft Test Guidelines for Pea under preparation and asked that Mr. Green be requested to complete the unresolved parts indicated at present by question marks. The Working Party expressed the hope that Mr. Green would be able to prepare for the next session of the Working Party a new draft for Test Guidelines for Pea according to the request of the Technical Committee for the above changes, as stated in paragraph 35 of document TC/XXV/11, and including the characteristics on resistance and related methods. The Working Party seized this opportunity to express again its disappointment at the decision of the Technical Committee. It only reluctantly accepted the decision that the information on genetics would only be indicated in an annex to the Test Guidelines, this especially in view of the fact that in future the knowledge of the genotype would become more important, as could be seen from the planned revision of the text of the UPOV Convention.

25. In connection with the discussions on revised Test Guidelines for Tomato, the Working Party had a long discussion on the justification for a different treatment of the results of the resistance test, depending on whether the variety was a homozygous or a heterozygous variety for that monogenic disease characteristic. Mainly because of the use of a rather agressive pathotype in test, differences could be seen between homozygous and heterozygous

varieties. Some experts questioned whether it was acceptable that two different standards be used within one and the same characteristic and that the test results would be differently interpreted depending on whether the candidate variety was a homozygous or a heterozygous variety, the latter sometimes showing certain plants which were affected by the disease, although less affected than susceptible (homozygous) plants.

26. The above discussions led to a general one on diseases and the fact that for many diseases it was not sure whether the method was sufficiently harmonized internationally, especially in cases where several strains existed within a given disease (e.g. for Verticillium in tomato).

27. A further problem arose in the presentation of different strains within one disease, which in some cases could amount to up to twenty. The Working Party therefore asked the Technical Committee to discuss that subject and to make proposals on whether, in the case of several strains within one disease, each strain should be presented as an individual characteristic or whether all strains should be grouped together in one single characteristic with an indication of the individual resistance as an expression of resistance against a certain strain or isolate. In the latter presentation, however, a variety could or, in general, would have more than one state of expression of that grouped characteristic. The Technical Committee was asked whether such a presentation might be preferable or whether that fact would only disturb the present rule that for each characteristic only one expression was possible for each variety.

28. The Working Party finally agreed that Dr. Habben (Germany) would prepare a paper collecting all the problems arising in connection with the testing of diseases in vegetable crops, together with proposals for possible solutions. That paper would be prepared by the end of February and circulated to the Working Party for comments.

New Methods, Techniques and Equipment in the Examination of Varieties

29. Mr. Grégoire (France) introduced document TWC/VIII/3 on common data structure for electrophoretic data, prepared by himself with the help of experts from Germany, The Netherlands and the United Kingdom. The document raised three main aspects, namely (i) general principles for computer database structures with respect to international harmonization and exchange of information; (ii) a proposal for a database design using a relation model for electrophoretic data; and (iii) computer programs to look at the data or to compute data. The Technical Working Party on Automation and Computer Programs had asked that the document be circulated to the members of the Technical Working Party for Agricultural Crops and for Vegetables and had invited comments of those Working Parties with a view to amending the document. The Working Party, being confronted with the document only during the session, agreed to study the document at the national level in order to identify the information which would need to be completed.

30. Mr. Brand (France) introduced document TWV/XXIII/19 on the Testing of the Electrophoresis Method on Pea, prepared by himself on the basis of information received as a result of circular U 1473. He regretted that information had been received only from two countries, France and the United Kingdom. Experts from the two countries agreed to continue to work together in order to develop a possible electrophoresis method for the testing of peas. Some experts did not consider such a study necessary as yet, since sufficient characteristics were available for the distinguishing of pea varieties.

31. Mr. Habben (Germany) introduced information on electrophoresis methods for asparagus as contained in a letter from Mr. Brand (France) and in a note from Germany, both distributed during the session and reproduced in Annex IV to this report. Experts from France and Germany finally agreed to study the different methods indicated in the above papers on the 70 varieties at present under study in the EEC, in order to compare the different methods and find the best one. A proposal for those trials in which example varieties from other countries should also be included would be prepared by Dr. Habben by the end of October and circulated to the Working Parties. It was suggested that 200 seeds should be sent in before February 1 from countries which would like additional varieties to be included in the study. Varieties from Japan and South Africa were especially welcome. The results of the study would then be discussed during the coming session of the Working Party in order to find the best method, to harmonize the method, to check the homogeneity and see whether the method was possible for the testing of DUS in asparagus, in which case it might be included in the draft Test Guidelines for Asparagus.

32. On the general application of advanced techniques in the DUS testing, the Working Party concluded its discussion that electrophoresis tests or tests by other advanced techniques could not replace a field test. Uniformity of many phenotypic characteristics could only be seen in a field test, as there was no correlation between those characteristics and different bands in an electrophorogram. The Working Party stressed that this should always be kept in mind when discussing the application of these new advanced techniques.

Final Discussions on Draft Test Guidelines

Test Guidelines for Asparagus

33. The Working Party noted documents TG/130/1(proj.), TWV/XXIII/16, as well as comments from The Netherlands, France and Germany. It finally made the following main changes to document TG/130/1(proj.):

(i) Conduct of Tests: Paragraph 1 was changed to read: "The minimum duration of test should be three years. The observations should be made on the same plant, in the second and third year." and in paragraph 3 the first sentence was changed to read: "The test should be carried out in the open, either in an earth-up culture or in an non-earth-up culture, under conditions ensuring normal growth."

(ii) Methods and Observations: Two new paragraphs would be inserted between paragraph 1 and 2 to read: "2. Unless otherwise indicated, all observations on the spear should be made after emergence." and "3. All measurements on the stem should be made on the longest stem." and paragraph 2 would now read: "4. All observations on the plant and the phylloclades should be made at full development of the first series of shoots."

(iii) Grouping of Varieties: In paragraph 2, subitems (ii) to (iv), would read:

" (ii) Stem: maximum length (fully extended) (characteristic 2)
(iii) Spear: anthocyanin coloration of apex (at emergence) (characteristic 9),
(iv) Sex expression (characteristic 19)"

(iv) Table of Characteristics:

Characteristics

1 To have the additional example variety "Eros (4)"

2 To receive drawings for explanation and to read: Stem: maximum length (fully extended)" with the states "short, medium, long"

3 To receive drawings for explanation

4 To be deleted

5 To have the asterisk deleted and additional information in brackets reading "(from non-harvested plants)"

6 To read: Stem: diameter at ground level"

7 To have the additional bracketed information "(on first non-branched side shoot)"

9 To have the example variety "Weissköpfiger" replaced by "Spaganiva"

10 To be deleted

16 To have the additional bracketed information "with indication of culture type"

17 To receive an asterisk

19 To read: "Sex expression" with the first two states to read: "only plants with female flowers, plants with female and male flowers" and to have an additional state "only plants with male flowers with styles" inserted before the last state; and to receive the example varieties "Spaganiva (2), Sieg (3), Rekord (4), Optima (5)"

(v) Explanations on the Table of Characteristics: In the explanations to characteristic 19, the figures below the drawings have to be deleted.

(vi) Literature: The following additional literature to be included: "Hartmann, H.D., 1989: "Spargel," Geisenheim, Ulmer Fachbuch Gemüsebau (ISBN 3-80001-5277-0)."

(vii) The Working Party asked the Technical Committee to adopt the Test Guidelines for Asparagus exceptionally without the indication of example varieties. At the present stage it would not be possible to indicate sufficient example varieties. The adoption of the document would however at least harmonize the characteristics used, especially in view of the study of the varieties at present in trials for EEC purposes. This would already be a considerable achievement.

Test Guidelines for Brussels Sprouts (Revision)

34. The Working Party noted document TG/54/4(proj.) and some comments from experts from France and made the following main changes to document TG/54/4(proj.):

(i) Conduct of Tests: Paragraph 1 would read: "The minimum duration of tests should be two similar growing periods."

(ii) Table of Characteristics:

Characteristics

2 To have the example variety "Kronos" replaced by "Richard"

4,5 To have the example varieties "Kinsman, Pinnacle" deleted

7 To have the example varieties "Leander, Orphelia" deleted

8 To have the example variety "Leander" deleted

10 To have the example variety "Promethar" deleted

15 To have the additional example varieties " Predora (1), Cavalier, Estate (2), Edmund, Riga (3), Cascade, Kundry (4)" and to have the spelling of the example varieties "Aries (3) and Rubine (5)" corrected

17 To have the example varieties "Estate, Jade Cross (3), Cor, Gabion (5), Rampart, Riga (7)"

19 To read "Aspect of sprout column"

The expert from the United Kingdom will indicate some further example varieties, especially for characteristics 4, 5 and 8.

Test Guidelines for Parsley

34. The Working Party noted documents TG/136/1(proj.), TWV/XXIII/20 and some further comments from experts from France. It finally made the following main changes to document TG/136/1(proj.):

(i) Table of Characteristics:

Characteristics

1 To have the spelling of the example variety "Sparticus" corrected in this characteristic as well as in any other where it appears

5 To have the example variety "US Paramount (5)"

6 To have the example variety "Hamburger Schnitt" deleted; after this characteristic a new characteristic to be inserted reading: "Leaf: weight" with the states "low, medium, high" and with the example varieties "Ground (3), Summer Green (5), US Paramount (7)"

7 To read: "Leaf blade: part of lobes reflexed upwards (visible by lighter color)" and to have the example variety "Mooskrause II" corrected to "Mooskrause 3"

8 To have the example variety "Mooskrause I" corrected to "Mooskrause 2"

11, 12 To be combined into one characteristic without limitation and with the example varieties "Clivi (3)" and "Commun (7)"

18 To have the example varieties "Commun, Clivi, Gewone Snij" deleted

20 To receive drawings for explanation

21 To have the example variety "Mooskrause I" corrected to "Mooskrause 2"

23 To receive drawings for explanation and to read: "Curled varieties only: Petiole: length of petiole of second order between 1st and 2nd node"

24 To have the states "absent or very weak, weak, medium, strong, very strong"

25 To have the example variety "Mooskrause I" corrected into "Mooskrause 2"

26, 27, 28 To have the example variety "Kurze Dicke" replaced by "Korte", the example variety "Lange Glatte" by "Lange" and "Lange Delta" by "Lange"

29 To have the states for Note 1 and for Note 9 deleted, as well as the 0xample varieties "Halblange, Glatte" and to have the example variety "Halblange" for state 5 corrected.

30 To be deleted

The experts from Denmark, The Netherlands and the United Kingdom were asked to indicate a few further example varieties and the expert from Denmark also drawings for characteristic 23.

Test Guidelines for Carrot

35. The Working Party noted documents TG/49/4(proj.), TWV/XXIII/17, TWV/XXIII/21 as well as comments from the experts from France. It finally made the following main changes to document TG/49/4(proj.):

(i) Methods and Observations: In paragraph 1 the number of plants would be "60."

(ii) Table of Characteristics:

Characteristics

6 To have the example varieties "Nandor (1), Tarenco (9)"

7 To have the additional example variety "De Chanteney (3)"

9 To receive an asterisk

11 The example variety for state 1 to read: "De Colmar à coeur rouge 2"

12 To receive the Notes "3, 5, 7"

14 To have the additional example varieties "Blanche à collet vert hors terre (1), Lobbericher (2), Imperator, Touchon (3)"

16 To have the additional example varieties "Buror, Little Finger, Nandor (1)"

17 In state 1 to have the example variety "Rubica" replaced by "Luc"

28 To receive explanations from the expert from France

29 To be limited to "Varieties with blunt tip only"

31 To receive a definition to be prepared by exerts from France and The Netherlands

35 To receive explanations

36 To have the example varieties for state 3 and for state 7 inversed and the example variety "D'Amsterdam à forcer" deleted

38, 39 To have the asterisk deleted

Mr. Van Ettekoven (The Netherlands) will check all indicated example varieties in view of the renaming of certain umbrella varieties by the EEC to ensure that they correspond to the new naming.

Test Guidelines for Tomato (Revision)

36. The Working Party noted documents TG/44/4(proj.) and TWV/XXIII/18 as well as additional comments from France. It finally made the following main changes in document TG/44/4(proj.):

(i) Material Required: Paragraphs 1 and 2 to be copied from the draft Test Guidelines for Asparagus and the plant material in that copy to be changed to 50 plants and 50 g. (15 g. for hybrids)

(ii) Grouping of Varieties: Paragraph 2 to have the grouping characteristics (i) and (iii) deleted and to have the additional grouping characteristics 9, 29 and 34.

(iii) Table of Characteristics:

Characteristics

1 To have the asterisk deleted

3 To have the additional bracketed information "(side shoots to be removed)"; after this characteristic a new characteristic to be inserted reading: "Indeterminate varieties only: Plant: speed of growth (when fastest variety reached at least 1.5 m. height)" with the states "slow, medium, fast"

4 To read "Indeterminate varieties only: Stem: length of internode (between 1st and 4th inflorescence)" with the example varieties to be deleted

6 To have the additional bracketed information "(in middle third of plant)"

10 To have the asterisk deleted

12 To refer to the bracketed information under 6

16 To have the asterisk deleted and the example variety "Jubilee (1)" added

20 The experts from France and The Netherlands to prepare new drawings for explanation

24 To read: "Fruit: size of corky area around peduncle scar"

25 To read: "Fruit: size of blossom scar"

29 To read: "Fruit: predominant number of locules" with the states "two, two to three, three to four, more than four"; the experts to check whether the states of expression would also sufficiently cover the Japanese varieties with more than ten locules.

34 To have the additional state "white" and the example varieties "Albino (1), Goldene Königin, Yellow Pear (3)"

36 To have the example variety "Rossol" replaced by "Primabelle"

39 To have the letters "sp." replaced by "incognita"; this and all the following resistance characteristics to receive the indication of the method, partly still to be supplied by the expert from France

40 To have the letters "sp." replaced by "race 0"

41, 42 To receive the additional bracketed information "(ex 1)" respectively "(ex 2)"

43 To receive the example variety "Forlano (9)"

49 To read: "Expression of silvering"

51 To have the word "solani" replaced by "spp."

(iv) Literature: The expert from France to indicate further literature.

(v) Technical Questionnaire: In paragraph 5 to have the characteristic for 5.1 deleted and paragraph 4 to be amended to read:

"4.1 Method of maintenance and reproduction
(i) vegetative propagation
(ii) seed propagation
(a) hybrid
(b) self-pollinated variety";

Discussion of Working Papers on Test Guidelines

Test Guidelines for Watermelon

37. The Working Party noted document TWV/XXIII/6 and made the following main changes in the document:

(i) Subject of these Guidelines: The guidelines would exclude varieties for animal consumption and for seed for human consumption.

(ii) Conduct of Tests: The third sentence of paragraph 3 would read: "As a minimum, each test should include 40 plants in the open or 30 plants in the glasshouse."

(iii) Table of Characteristics:

Characteristics

1 To have the order of the states reversed; before this characteristic a new characteristic, with an asterisk, to be inserted reading: "Ploidy" with the states "diploid, triploid, tetraploid"

2 To have the explanations to the characteristic deleted

5 To read: "Plant: speed of growth (until beginning of flowering)" with the states "slow, medium, fast"; before this characteristic a new characteristic to be inserted reading: "Depression of nerves of cotyledon" with the states "absent (A graine rouge à confire à chair verte), present (Sugar Suika)" and a second characteristic reading: "Seedling: length of hypocotyle" with the states "short, medium, long", the experts from France to indicate example varieties

6 To have the states "dwarf, runner"

7 To have the additional bracketed information "(of first fruit)"

9 To have the asterisk deleted

12 To read: "Plant: number of nodes up to first node with female flowers"; the following additional characteristics would be inserted: "Leaflet: length" with the states "short, medium, long", "Leaflet: width" with the states "narrow, medium, broad" and "Petiole: length" with the states "short, medium, long", the expert from France would indicate example varieties for these three characteristics; "Third leaf: intensity of lobing" with the states "weak, medium, strong"

14 To be split into two characteristics, the first with the states "yellow green, green, grey green" and the second on intensity with the states "light, medium, dark"

15 To read: "Leaf blade: depth of incisions of leaf of central third" with the states "shallow, medium, deep"

16 To read: "Leaf blade: flecking"; after this characteristic a new characteristic to be inserted reading: "Leaf blade: blistering" with the states "weak, medium, strong" and another characteristic reading: "Leaf blade: undulation of margin" with the states " weak, medium, strong", the expert from France to indicate example varieties

18 To have the second state of expression placed at the end of the states of expression

19 To have the asterisk deleted and the word "high" replaced by "low"

21 To have the order of the states reversed

24 To have the order of the states reversed and the state "narrow elliptic" replaced by "cylindric"

25 To be split into two characteristics, the first with the states "green white, yellow, yellow green", the second on the intensity of the green color with the states "very light, light, medium, dark, very dark"

27 To have the asterisk deleted

28 To have the asterisk deleted and the word "abscission" replaced by "insertion"

29 To have the states "flat, round, conical"

30 To have the same states as characteristic 29 and to have the example variety "Yamato 3" deleted; before this characteristic, two characteristics to be inserted reading: "Fruit: depression at base" with the states "weak, medium, strong" and "Fruit: depression at apex" with the states "weak, medium, strong"

(iv) The Working Party, due to lack of time, was only able to discuss the document up to characteristic 29. It decided to ask all experts to send their comments on the document before the end of the year to the Office of UPOV, which would circulate them to the members of the Working Party.

Status of Test Guidelines

38. The Working Party agreed that the draft Test Guidelines for Asparagus, for Brussels Sprout (Revision), for Carrot (Revision) and for Parsley should be sent to the Technical Committee for final adoption, as soon as the missing information had been received by the Office of UPOV.

39. The Working Party agreed that draft the Test Guidelines for Tomato (Revision) would require further discussion during its coming session. The same would be true for the working paper on Test Guidelines for Watermelon.

40. Lack of time prevented the Working Party from discussing the remaining working papers on Test Guidelines.

Future Program, Date and Place of Next Session

41. The Working Party expressed its wish to meet, if possible, during next year in Hungary and asked the Office of UPOV to enquire as to that possibility. Should it not be possible, the expert from Germany would invite the Working Party to hold its twenty-fourth session in Hanover, Germany, from June 4 to 7, 1991 [After the session the Office of UPOV received an invitation from Hungary to meet in Hungary at a place still to be fixed from June 4 to 7, 1991]. The session would start on June 4 and would close on June 7 at 4 p.m. The following items were scheduled for discussion during the coming session:

(i) Short reports on special problems or difficulties encountered;

(ii) Report on the twenty-sixth session of the Technical Committee;

(iii) Recommendations of the Technical Committee;

(iv) Items for the Technical Working Party on Automation and Computer Programs;

(v) Minimum distances between varieties;

(vi) Disease resistance characteristics;

(vii) New methods, techniques and equipment in the examination of varieties;

(viii) Final discussion on draft Test Guidelines for:

- Tomato (Revision)
- Peas (Revision) (TG/7/5(proj.), TWV/XXIII/11 and a working paper to be prepared by Mr. Green

(ix) Discussion on working papers on Test Guidelines for:

- Cabbage (revision) (TG/48/3, TWV/XXIII/2 Rev. + comments to be collected by Mr. Evans by the end of the year)
- Broccoli (TWV/XXIII/7 and 13 + comments to be collected by Mr. Evans by the end of the year)
- Cauliflower (Revision) (TG/45/3, TWV/XXIII/3 Rev. + comments to be collected by Mr. Evans by the end of the year)
- Chick Pea (TWV/XXIII/15 + comments to be received by Mr. Brand)
- Cucumber, Gherkin (Revision) (TG/61/3, TWV/XXI/12 + comments to be collected by Mr. Van Ettekoven)
- Cucurbita maxima (TWV/XXII/16 + working paper to be prepared by Mr. Evans)
- Cucurbita moschata (working paper to be prepared by Mr. Evans)
- French Bean (Revision) (TWV/XXIII/10 Rev. + comments to be collected by Dr. Habben)
- Garlic (working paper to be prepared by Mr. Brand)
- Lettuce (Revision) (TG/13/4, TWV/XXIII/4 Rev. + comments to be collected by Mr. Van Marrewijk)
- Onion (Revision) (TG/46/3, TWV/XXIII/4 Rev. comments to be collected by Mr. Evans)
- Shallot (TWV/XXIII/9 Rev. + comments to be collected by Mr. Van Marrewijk)
- Spinach (Revision) (TG/55/3, TWV/XXI/11)
- Watermelon (TWV/XXIII/6 + a new draft as a result of the last session to be circulated by the Office of UPOV for comments)
- Witlof (TWV/XXIII/5 Rev. + comments to be prepared by Mr. Porcelli and Mr. Van Marrewijk)
- Oenothera (TWV/XX/9)
- Sweet Pepper (TG/76/3 + working paper to be prepared by Mr. Brand on the basis of comments to be collected by him by the end of the year)

Chairmanship

42. As the chairmanship of Mr. Brand (France) will terminate at the end of the coming ordinary session of the Council, the Working Party unanimously agreed to propose to the Technical Committee that it propose to the Council that Mr. Evans (United Kingdom) be elected the new chairman of the Working Party. [The Council, during its session on October 18 and 19, 1990, and having noted that Mr. Evans had withdrawn his candidature, elected unanimously Mr. N.P.A. van Marrewijk (Netherlands) as Chairman of the Working Party for a term ending at the end of the ordinary session of the Council in 1993]

Visits

43. On July 2, the Working Party visited seed companies and the National Institute for Agricultural Research, especially the St. Rémy de Provence research station of Clause S.P., the Eyragues research station of A.S.L. Association de Sélection des Légumes and the INRA Vegetables breeding station

and Pathology station in the Montfavet Center. In the afternoon of July 3, it visited the Eyragues research station of Gautier and, during the remaining days, a slightly different DUS test each day at the GEVES station at Cavaillon.

44. This report has been adopted by correspondence.

[Four annexes follow]

ANNEX I

LIST OF PARTICIPANTS AT THE TWENTY-THIRD SESSION OF THE TECHNICAL WORKING PARTY FOR VEGETABLES, AVIGNON, FRANCE, JULY 2 TO 6, 1990

I. MEMBER STATES

DENMARK

Mrs. B. HOEGH, Afdeling for Sortsafproevning, Statens Forsoegsstation, Teglvaerksvej 10, Tystofte, 4230 Skaelskoer

FRANCE

Mr. R. BRAND, INRA/GEVES, B.P. 1, Les Vignères, 84300 Cavaillon (tel. 90.71.26.85, fax 90780161)

Mr. G. BREUILS, INRA/GEVES, B.P. 1, Les Vignères, 84300 Cavaillon (tel. 90.71.26.85, fax 90780161)

Mr. S. GREGOIRE, INRA, La Minière, 78285 Guyancourt Cedex, (tel. 00331-30.83.36.00, telex 698 450, fax 30 83 36 29)

Mrs. DATTEE, GEVES, La Minière, 78285 Guyancourt Cedex, (tel. 00331-30.83.36.20, telex 698 450, fax 30 83 36 29)

GERMANY

Dr. L. GARTE, Bundessortenamt, Osterfelddamm 80, 3000 Hannover 61 (tel. 0511 57041, fax 0511 563362)

Dr. J. HABBEN, Bundessortenamt, Osterfelddamm 80, 3000 Hannover 61 (tel. 0511 57041, fax 0511 563362)

JAPAN

Mr. T. WATANABE, Seeds and Seedlings Division, Ministry of Agriculture, Forestry and Fisheries, 1-2-1 Kasumigaseki, Chiyoda-Ku, Tokyo (tel. 03-591-0524, fax 03-503-3957)

ITALY

Prof. S. PORCELLI, Direttore, Istituto Sperimentale per l'Orticoltura, Via Cavalleggeri 25, Casella Postale No. 48, I-84098 Pontecagnano-Salerno (tel. 089-381252 or 38 12 93)

NETHERLANDS

Mr. K. VAN ETTEKOVEN, Nederlandse Algemene Keuringsdienst voor Groente- en Bloemzaden (N.A.K.G.), Postbus 27, 2370 AA Roelofarendsveen (tel. 01713-19102, fax 01713-16256)

Mr. N.P.A. VAN MARREWIJK, C.R.Z., P.O. Box 32, 6700 AA Wageningen (tel. 08370-79362, fax 79228)

SOUTH AFRICA

Dr. S. VISSER, Agricultural Attaché, South African Embassy, 59, quai d'Orsay, 75007 Paris, France (tel. (1) 45.55.92.37, fax (1) 45518812)

SWEDEN

Mr. B. WOLLBERG, Swedish Seed Testing and Certification Institute, Box 33, 221 00 Lund (tel. 046 124520)

UNITED KINGDOM

Mr. J.L. EVANS, National Institute of Agricultural Botany, Huntingdon Road, Cambridge CB3 0LE (tel. 0223 276381, direct dial 342308; telex 817455, telefax (0223) 277602)

II. TECHNICAL EXPERTS

Mrs. F. KOVAACS, Magyar Vetömagkerrskedermi Tärsasäg, Rottendiller U. 33, P.O. Box 85, 1400 Budapest, Hungary (tel. 1210-200)

Mr. J.N. PLAGES, Vilmorin, La Menitré, 49250 Beaufort-en-Vallée, France

Mr. Y. DURAND, Mas St. Charles, 13210 St. Rémy de Provence, France

III. OFFICER

Mr. R. BRAND, Chairman

IV. OFFICE OF UPOV

Dr. M.-H. THIELE-WITTIG, Senior Counsellor, 34, chemin des Colombettes, 1211 Geneva 20, Switzerland (tel. 022 7309152, telex 412 912 ompi ch, telefax (041-22) 7335428)

[Annex II follows]

CRZ Centrum voor Rassenonderzoek en Zaadtechnologie
Centre for Variety Research and Seed Technology

Short Reports from the DUS-authorities in the Netherlands:

Center for Variety Research and Seed Technology (CRZ)

From the first of February this year the former RIVRO has merged with the former seed testing station (R.P.v.Z.). A number of routine tasks (e.g. tests for germination capacity and health) and the testing for Value for Cultivation and Use have been split off. The scope of the research work also changed quite a lot to more fundamental and strategic research for varieties and seed technology. Two research departments will concentrate their efforts in this field. A third department studies new methods for VCU-testing and coordinates the editing and issue of the Dutch recommending variety lists. A fourth department studies new methods and technologies for DUS-testing and seed technology. The fifth department does the DUS-testing for Registration and Plant Breeders Rights. Although there has been a reallocation of capacity this department did not change very much.
For DUS-testing and registration of vegetable varieties there will be a closer cooperation with NAK-G, but the responsibility for the testing and the report to the Board will be with the CRZ and the Permanent Expert of the Board for Plant Breeders Rights.
From the first of January 1991 a merge of CRZ with the Center for Plant Breeding Research (CPO) is foreseen. The statutory variety testing will be given special attention in this constitution.

DUS testing of mushroom varieties

During the TWV-meeting in 1986 in Italy we gave a short report on annulment cases in mushroom. Since then thorough studies have been made on the original material and similar material from other sources. At the moment of application the original material was distinct from other material existing. The study also aimed at the development of new and reliable methods for the registration of mushroom varieties. Especially with larger numbers of varieties this is a very hard job, because the development of the crop is very fast and the characteristics change during the day of observation. The study is continued this autumn in our new facilities at CRZ.

Application for a vegetatively propagated tomato variety

Last year an application for an 'in vitro' propagated tomato variety was made. This application is under test in two trials this year, one at NAK-G and one at CRZ. The application originates from a productive plant of a hybrid variety. In the CRZ-trial we have three treatments viz. the material belonging to the application, material produced in the same way but originating from different plants of the original variety and material raised from seeds. The first problem we had was the synchronisation of the vegetative material and the

The claim for distinctness was early maturity and higher productivity. We found some earlier maturity in the vegetatively propagated samples but also a rather wide variation within the plots for the height of the first truss. Some distinctness was found but now the question of dependency from the original variety becomes important. Does the 'in vitro' material belong to the scope of the original variety (listed without plant variety protection)? From another point of view you may wonder if the early harvest maturity results from the treatment (in vitro propagation). In this case it becomes a legal question. Can plant breeders rights be granted to a technical method? In the CRZ we think that the earlier maturity results from physiological older plant material because of the 'in vitro' propagation. It might even result from the fact that initially the material was taller than the seed raised plants, although we had sown the original variety during three subsequent weeks but kept at a higher temperature to synchronise them with the 'in vitro' material.
Because there are so many questions left and the lay-out of the trial did not fit to all problems met, we have to extent and continue the testing during next season.

Application of advanced techniques in DUS-testing

At management and research policy level in The Netherlands there is a strong opinion that in ten years the whole DUS-testing will be a matter of fast techniques in the laboratory. Field trials and descriptions by means of phenotypic characteristics should no longer be required. A variety might just be charactarised by a number of electrophoresis bands and RFLP characteristics. According to this opinion the testing work should become cheaper by adopting the new technologies, which are to replace the present practices.
This will also require an enormous change of opinion at the technical level. At present we feel a strong need for sophisticated methods that may replace the laborious observations by measuring. If these methods could be applied to 'complex characteristics' it would help us very much.

During a consultation of the professional organisations in the Netherlands some representatives expressed as their opinion that biochemical characterisation of varieties would only be acceptable if there was a clear relation to important characteristics of the variety. If not, plant variety protection would become meaningless because of similarity and plagiarism.

From a technical point of view I think that we should adopt useful techniques of any kind. The strong opinion that all present methods can be replaced completely seems wishfull thinking. The new methods will enlarge our toolbox and the reliability of our work but will never replace all present work. Maybe the costs of DUS-testing will increase less than with the present methods.
(N.P.A. van Marrewijk).

CRZ, Wageningen, 90.06.29.

[Annex III follows]

Nederlandse Vereniging voor het Tuinzaadbedrijfsleven

Van Zuylen van Nijeveltstraat 110, Wassenaar
Correspondentie:
Postbus 555, 2240 AM Wassenaar - Holland
Telefoon : 01751 - 19356 *
Telex : 34562 zaden nl
Telefax : 01751 - 77334
Giro : 53.83.62
Amro Bank : 43.05.08.182

TO THE MEMBERS OF THE UPOV
TECHNICAL WORKING PARTY FOR VEGETABLES
c/o Mr. R. Brand (Chairman)
GEVES/INRA
B.P. 1
Les Vigneres
F-84300 Cavaillon
FRANCE

Uw ref.: Onze ref.: NvdB-DM/90.228 Datum: June 29, 1990

Sir,

In the coming session of the Technical Working Party for Vegetables the testing of Bremia lactucae in lettuce will be on the agenda.
Dutch plant breeders are seriously concerned about the consequences of changing the current testing system into a DM-genes system.

In the annex to this letter we have summoned up our objections to such a system. We would appreciate it very much when this paper could be brought to the attention of the members of the TWP.

Yours sincerely,

Horticultural Seed Trade Association
of the Netherlands

Dr. G.A.J.M. Geertman
General Secretary

DM-GENES IN LETTUCE VARIETY TESTING

Dutch plant breeders, represented by NTZ (Horticultural Seed Trade Association of the Netherlands) hold to the opinion that the current system of the interaction pattern with the Bremia isolates should be maintained in the UPOV guideline for lettuce variety testing. We strongly oppose the use of DM-genes in the variety descriptions for the following reasons:

1. The DM-genes system is indirect
At all times presence of one or more resistence genes has to be derived from the interaction pattern. DM-genes represent an interpretation of the reaction of the tested variety on a group of isolates. The genes themselves are not detectable with the current methods.

2. The DM-genes system changes through time
Research (Farrara et al, Plant Pathology (1987) 36:499-514) has shown that several DM-genes are synonyms or combinations of newly acknowledged, independantly heriditary DM-genes. As a result some DM-genes have been abandoned (f.e. R17), others have been renamed (f.e. R14 = DM1) and some have been declared synonymous (f.e. R5 = R8 = DM5/8).
In the future new Bremia isolates containing unknown virulence factors will lead to new DM-genes. This could require changes in the current system again.

3. DM-genes demand additional genetic testing
When the system of DM-genes would become mandatory in variety testing, plant breeders would be forced to do additional research on the genetic background of the new variety. This effort would also be asked of the official organizations responsible for variety testing. We fear this will only lead to delay in the registration of new varieties.

4. Commercial growers do not profit from a DM-genes system
Commercial growers are only interested in resistence against the prevailing Bremia isolates, without consideration for the DM-genes which might be responsible for this resistence. The use of DM-genes requires understanding of the genetics; this could not be reasonably asked from people outside the scientific field, especially when one takes into account the expected evolution of the system.

5. Practical objections
Plant breeding companies are not in the position to designate new DM-genes. In such a situation they can not do otherwise than declare that the variety does not bear known DM-genes. Above from that it is possible that without being aware of it a wrong interpretation of the test result is given (f.e. DM18 versus DM2,3,16). This has happened before.
Also different combinations of DM-genes might be derived from one and the same interaction pattern. This could theoretically mean that one and the same variety on account of the DM-genes will be acknowledged as two different varieties, although there are no morphological of physiological differences.

6. Fundamental objections
According to the UPOV guidelines distinctness of a variety is based on morphological and physiological characteristics.
The presumed occurence of DM-genes is neither a morphological nor a physiological characteristic, only an interpretation of a physiological reaction of the plant. UPOV should as yet hold to her principles in variety testing.

7. Phytosanitary objections
Serious objections from the national plant health services could be expected concerning the use of exotic and synthetic Bremia isolates. While the use of these isolates is confined to variety testing, the risk of infection towards lettuce growing practice nevertheless is evident.

8. British rules?
Until now NIAB required of the breeding companies information about the DM-genes in the varieties brought in for registration. Conforming to this requirement does not mean that the Dutch plant breeding companies support a DM-genes system in variety registration. The companies have given the DM-genes as well as they could although they were fully aware of the objections and limitations mentioned earlier in this paper.

Conclusions
Dutch plant breeders hold the view that the DM-genes system is insufficiently objective and reliable. Therefore we strongly support maintenance of the current system based on the interaction pattern.
To simplify the testing of new varieties the companies however are willing to give the DM-genes that might be present in the new variety.
To meet the wish of several members of UPOV to design an internationally uniform classification of Bremia resistance one could best choose for an internationally adopted group of isolates without coming to conclusions about genetic components.
The use of non-native isolates however should be besetted with the highest possible phytosanitary safety regulations.

NTZ
June 28, 1990

[Annex IV follows]

INRA
GROUPE D'ETUDE ET DE CONTROLE
DES VARIETES ET DES SEMENCES
G.E.V.E.S. CAVAILLON

RÉPUBLIQUE FRANÇAISE
MINISTERE DE L'AGRICULTURE
Ministère chargé de la Recherche et de l'Enseignement supérieur

/réf. :

\/réf. :

Objet :

BUNDESSORTENAMT
M. HABBEN
POSTFACH 610440
3000 HANNOVER 61 RFA

Les Vignères, Monday 11 June 1990

Mister,

ASPARAGUS ELECTROPHORESIS

The method developped by locus in France use an enzyme electrophoresis method for the following enzymes (PAGE or starch gel).

DIA	: diaphorase
MR-A	: menadione reductase
MR-B	: menadione reductase
IDH	: isocitrate deshydrogenase
MDH-A	: malate deshydrogenase
MDH-B	: malate deshydrogenase

I will appreciate if you can send the document of synthesis for the 15 th of june to UPOV for distribution to the UPOV-T.W.V. participants.

Sincerely yours,

R. BRAND

FRANCE
INRA-GEVES
DECEMBRE 1989

CONTRIBUTION TO UPOV ITEM ON TESTING OF ELECTROPHORESIS METHODS ON ASPARAGUS (T.W.V.)

I. METHOD ACTUALLY USED OR UNDER STUDY

GEVES has actually no work on the establichment of an electrophoresis method on ASPARAGUS. Two french studies are at disposition :

- a study on biochimical identification of clônes and lines of ASPARAGUS -ROUX L. and ROUX Y, 1981 and 1983- as indicated in the literature of TG/130/1 proj.
- a recent study on the research of others enzymes to be used in the identification of ASPARAGUS genotypes conducted in the french private society LOCUS and financed by I.N.R.A., VILMORIN and MARIONNET.

Due to the interference with patent applications of the genetic material studied for this matter, the publication of the work will be available for 1990 summer and so also for UPOV.

II. REPORT ON THE METHODS

The method described by ROUX and al. is not used because of lack of discrimination.
The method of LOCUS society will be used in the future and will be provided to the UPOV members for 1990 summer.

III. VARIETIES TO BE INCLUDED IN THE TRIAL FOR THE PURPOSE OF COMPARING THE METHODS.

We propose a list of varieties classed by their genetic structure as presented on the paper of Mrs CORRIOLS in the EEC ASPARAGUS SUBGROUP.

* 1. Population

- ARGENTEUIL : selection JULIA (mainteneur : Ets BRISSET)
- HATIVE D'ARGENTEUIL : maintenance of F. MARIONNET
- MARY WASHINGTON : maintenance of Ets DEJEANT
- DARBONNE 3 : maintenance from DARBONNE
- DARBONNE 4 : maintenance from DARBONNE
- VIOLETTE D'ALBENGA : no maintenance in FRANCE. See in ITALY.

* 2. Hybrides

A. Hybrids with male and female plante, with heterozygous parent components.

a. Double hybrids of clônes

- LARAC : INRA/AGRI OBTENTIONS

b. Simple hybrids of clônes

- STELINE : INRA/AGRI OBTENTIONS

- CITO : INRA/AGRI OBTENTIONS
- UC 157 : M. BENSON. California. USA, please take care to don't use F2 UC 157
- JACMA 2001 : MARIONNET
- JACMA 2002 : MARIONNET

B. Simple hybrids of clônes with only male plants (or considered as)

- the female component is an heterozygons clône, in vitro propagated
- the male component is a "supermale YY" clône, in vitro propagated.

a. With some hermaphrodites plants

- LUCULLUS : to be precised by RFA
- GIJNLIM : Nederland

b. With only male plants

no one existing actually

C. Hybrids F1

- the two components are homozygous

a. Hybrids F1 between two lines, sexually propagated

no one existing actually

b. Hybrides F1 between one female line, sexually propagated, and a "supermale YY" in vitro propagated (dihaploïde)

- ANDREA : INRA/AGRI OBTENTIONS

c. Hybrids F1 between two dihaploïds lines, in vitro propagated

no one existing actually

* 3. Clônes (vegetatively propagated)

- JAG V1 : MARIONNET
- JAG V2 : MARIONNET
- JAG V3 : MARIONNET
- some clônes from Nederland and RFA

In addition, some japonese material could be added to test the maximal variability. It would be useful to ask directly to JAPAN.

- Mlle RAMEAU. INRA Versailles, breeding station.
- R. BRAND, F. BOULINEAU. GEVES.
- Mlle GRENECHE. GEVES Le Magneraud

Mainteneurs :

M. BRISSET Jean
La Boulas Cedex 1172
41700 CONTRES

M. DEJEANT J.L
Domaine de l'Ile
34630 SAINT THIBERY

M. MARIONNET François
41230 SOINGS EN SOLOGNE

Ets DARBONNE
6 Bd Joffre
BP 8
91490 MILLY LA FORET

Z 5

Hannover, den 29.06.90

Electrophoresis of Asparagus

1.) Extraction of phylloclade proteins

100 mg phylloclades are homogenised in 2 ml buffer:

25 mM Tris-HCL pH 7,2
10 mM ascorbic acid 5 %
5 % sucrose

2.) Electrophoresis

2.1. PAGE pH 7,9 of the phylloclade proteins

Acrylamid concentration: 5 % T, 5 % C

buffer : 0,03 M Tris borate pH 7,9
sample : 10 µl extract from 1.
visualisation of the proteins : staining with Coomassie blue

Interpretation of the protein patterns

REM	Protein group	Number of bands	Number of band combinations
high ↓ low	P 1	2	4
	P 2	5	13
	P 4	2	3
	P 5	1	2

2.2. IEF pH 3 - 10 of the phylloclade peroxydases

Application of the sample: 10 µl extract from 1 towards the anode

Visualisation of the peroxydases: staining with o-Dianisidine x 2 HCl

Interpretation of the peroxydase patterns

IP	peroxydase group	number of bands	number of band combination
low ↓ high	Prx 1	3	4
	Prx 3	6	4

[End of document]