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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

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TECHNICAL WORKING PARTY ON AUTOMATION AND COMPUTER PROGRAMS

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REVISION OF DOCUMENT TGP/12/1:
DISEASE NOMENCLATURE AND DISEASE RESISTANCE CHARACTERISTICS

Document prepared by experts from the Netherlands

INTRODUCTION

1. At its forty-fifth session, held in Geneva from March 30 to April 1, 2009, the Technical Committee (TC) considered a proposal made by Mr. Kees van Ettekoven (Netherlands) at the forty-second session of the Technical Working Party for Vegetables (TWV), held in Cracow, Poland, from June 23 to 27, 2008, concerning the nomenclature of disease resistance. The TC agreed to invite the TWV to propose whether to include a section on the nomenclature of disease resistance in document TGP/14 "Glossary of Technical, Botanical and Statistical Terms Used in UPOV Documents" or in a future revision of document TGP/12 "Guidance on Certain Physiological Characteristics".

2. At its forty-third session, held in Beijing, China, from April 20 to 24, 2009, the TWV considered documents TWV/43/13 "Nomenclature of Pathogens" and TWV/43/16 "Principles on the Use of Disease Resistance Characteristics in UPOV Test Guidelines" and concluded that the proposal should be presented to the TC and other Technical Working Parties (TWPs) for consideration for a possible future revision of document TGP/12/1 (document TGP/12/2). It also agreed that the states of expression for quantitative characteristics with three notes might be reviewed, if appropriate.

3. At its forty-sixth session, held in Geneva from March 22 to 24, 2010, the TC agreed that the TWV should develop a proposal for a revision of document TGP/12/1 in order to provide guidance on the nomenclature and use of disease resistance characteristics, as set out in paragraphs 1 and 2 above. The following copy of the table of contents of document TGP/12/1[*] is provided for information:

TABLE OF CONTENTS PAGE

[*] A copy of document TGP/12/1 is provided on the TWC/28 webpage under "Background Documents" (for information only)

DISEASE RESISTANCE PROTOCOLS

4. It is proposed that Section I, 2. “Disease Resistance” be amended by replacing “2.4 Explanations for disease resistance characteristics in Test Guidelines” with the following text:

2.4 Explanations for disease resistance characteristics in Test Guidelines

2.4.1 Where disease resistance characteristics are included in Test Guidelines, the following information should be provided in Chapter 8 “Explanations on the Table of Characteristics” in the form of a standard disease resistance protocol as set out below. This standard resistance protocol is guidance and not a strict prescription. It is not only advised to use the subjects mentioned, it also is advised to use the same order of the subjects. In order to increase the legibility and use of the protocols it is also advised to restrict the number of extra topics.

STANDARD RESISTANCE PROTOCOL
*compulsory

* 1. Pathogen
2. Quarantine status
* 3. Host species
* 4. Source of inoculum
* 5. Isolate
6. Establishment isolate identity
7. Establishment pathogenicity
8. Multiplication inoculum
8.1 Multiplication medium
8.2 Multiplication variety
8.3 Plant stage at inoculation
8.4 Inoculation medium
8.5 Inoculation method
8.6 Harvest of inoculum
8.7 Check of harvested inoculum
8.8 Shelflife/viability inoculum

9. Format of the test
* 9.1 Number of plants per genotype
* 9.2 Number of replicates
* 9.3 Control varieties
9.4 Test design
9.5 Test facility
9.6 Temperature
9.7 Light
9.8 Season
9.9 Special measures

10. Inoculation
10.1 Preparation inoculum
10.2 Quantification inoculum
* 10.3 Plant stage at inoculation

* 10.4 Inoculation method
10.5 First observation
10.6 Second observation
* 10.7 End of test

11. Observations
* 11.1 Method
* 11.2 Observation scale
* 11.3 Validation of test
11.4 Off-types

* 12. Interpretation of data in terms of UPOV characteristic states

13. Critical control points:

5. It is proposed to add the following text after Section I, 2.4 “Explanations for disease resistance characteristics in Test Guidelines”.

2.5 The nomenclature of pathogens

2.5.1 Introduction

2.5.1.1 As in the plant kingdom, also in the field of pathogens the denomination of the subject is important in order to correctly identify the various diseases. The names of pathogens sometimes have to change as a consequence of improved insight in the pathogen and its relation with other pathogens. Continuous attention to the proper use of names is therefore important.

2.5.1.2 In the seed trade, because of limited space on seed labels, the scientific binomial for the pathogens is normally replaced by a code. In the disease resistance coding working group of the International Seed Federation (ISF) a system of codes was introduced to ensure uniformity in the use of these codes[a]. The codes are derived from the names of the pathogens and can also be found on the ISF website: *www.worldseed.org* on the subject of pathogen coding. It is advised to introduce the disease codes in the Test Guidelines. The old name will keep the appropriate code, e.g. *Oidium neolycopersici* (ex *Oidium lycopersicum*) On (ex Ol).

2.5.1.3 It is also advised to use the same separators as used by the ISF, for example :(colon) to separate the species code from the strain/race/pathotype code. The colon is followed by a space e.g. in Bl: 1-25.

2.5.1.4 As with the names and codes of the diseases, also the correct naming of the races and strains needs to be standardized to avoid confusion. It is advised to implement the race nomenclature developed by ISF in the Test Guidelines.

2.5.2 Names of the relevant pathogen naming organizations on which the names for pathogens are based:

American Phytopathological Society (APS)
International Committee for Taxonomy of Viruses (ICTV)
International Society of Plant Pathology (ISPP)
CAB International Bioscience

2.5.3 Explanation about the use of old and new names

In principle, the Test Guidelines should follow the latest valid taxonomic views. This principle has two disadvantages: the Test Guidelines are not revised annually and in practice the users of the pathogen names may be familiar with the old name and not yet with the new name. ISF is very active in the standardization of pathogen naming. The disease resistance coding working group from ISF introduced the following system[a]: a new denomination is given in brackets and inverted commas behind the old name with the prefix 'now' for a period of 5 years. After 5 years, the names are reversed: the new name is given first with behind it in brackets the old name with the prefix 'ex' for a further period of 5 years. After the second period of five years, only the new name is given. It is advised to follow the same principles in the UPOV Test Guidelines in order to avoid confusion.

2.5.4 Necessity to change Test Guidelines

2.5.4.1 As Test Guidelines are only revised with long intervals, the solution using the new and the old code (between brackets) for 5 years is suitable for Test Guidelines as well, thus avoiding the need of frequent partial revisions of guidelines for the change of pathogen names. It is advised to use this principle in the Test Guidelines. Examples of such solutions that are in use in practice at the moment:

Melon:
Podosphaera xanthii (ex *Sphaerotheca fuliginea*) Px (ex Sf)

Cucumber:
Golovinomyces cichoracearum (ex *Erysiphe cichoracearum*) Gc (ex Ec)
Podosphaera xanthii (ex *Sphaerotheca fuliginea*) Px (ex Sf)

Tomato:
Fulvia fulva (ex *Cladosporium fulvum*) Ff (ex Cf)
Oidium neolycopersici (*ex Oidium lycopersicum*) On (ex Ol)

2.5.4.2 It is not necessary to revise Test Guidelines in order to reflect changes in pathogen names from year to year, because the old pathogen name will be mentioned for 10 more years in international trade.

Note: [a] Further information on the approach can be found at: *http://www.worldseed.org/isf/pathogen_coding.html*.
(This note is for background information when considering this draft and will not appear in the final, published document.)

[End of document]