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**Enlarged Editorial Committee**

**TC-EDC/Oct18/6**

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# MATTERS TO BE RESOLVED CONCERNING TEST GUIDELINES CONSIDERED BY THE ENLARGED EDITORIAL COMMITTEE IN MARCH: TOMATO (*SOLANUM LYCOPERSICUM* L.) (PARTIAL REVISION)

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1. The Enlarged Editorial Committee (TC-EDC), at its meeting held in Geneva, on March 26 and 27, 2018, considered document TC-EDC/MAR18/8 "Partial revision of the Test Guidelines for Tomato" and agreed that the technical issues raised should be addressed by the Technical Working Party for Vegetables (TWV) (see document TC-ECD/MAR18/11 "Report", paragraph 57).

2. The TWV, at its fifty-second session, held in Beijing, China, from September 17 to 21, 2018, considered documents TWV/52/11 "Matters to be resolved concerning Test Guidelines adopted by the Technical Committee: Tomato" and TWV/52/19 "Addendum to Matters to be resolved concerning Test Guidelines adopted by the Technical Committee: partial revision of the Test Guidelines for Tomato and Tomato Rootstocks".

3. The TWV agreed that Characteristic and Ad. 48 "Resistance to *Fusarium oxysporum* f. sp. *lycopersici* (Fol)" be excluded from the partial revision as research was still ongoing. The TWV agreed that the characteristic should be reconsidered at its fifty-third session (see document TWV/52/20 "Report", paragraph 62).

4. The TWV further agreed the following (see document TWV/52/20 "Report", paragraph 63):

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| General remark | Control varieties in the DNA-test should also be indicated in the bio-test.<br>Why are the control varieties not used as example varieties?<br>*Leading Expert: The proposal can be improved by having the same set of varieties in DNA-test, bio-test and as example varieties. See Ad. 51 (ii) 4.2 and Ad. 58 (ii) 4.2.*<br>*TWV: agreed* |
| Chars. 51, 58 | - to be kept as VG (VS not appropriate for DNA marker test, see TGP/9. In case of DNA markers, 20 plants are observed for uniformity. According to chapter 4.1.4 of TG/44/11 Rev., indication of VS is not appropriate.)<br>*TWV: agreed*<br>- DNA marker test to be presented to the BMT to check whether method corresponds to TGP/15<br>*Leading Expert: I will participate in the BMT and the item will be discussed. I will report to the TWV accordingly*<br>*The TWV noted that the method corresponds to TGP/15 and that document TGP/15 would be revised to include a relevant example* |

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| Ad. 51<br>Ad. 58<br>(Ad. 48 was deleted- see paragraph 62 of this document) | to check whether to read "Resistance to race 0 (ex 1) and race 1 (ex 2) to be tested in a bio-assay (method i) or in a DNA marker test (method ii), if appropriate. Resistance to race 2 (ex 3) to be tested in a bio-assay (method i)." (to clarify whether it should be bio-essay only OR bio-essay in conjunction with DNA marker test where required. The gene-specific marker model anticipates a presence of a reliable link between presence of the marker and expression of the characteristic.)<br><br>*Leading Expert:*<br>*Ad. 51*<br>*To read "Resistance to strain 0, 1 and 2 to be tested in a bio-assay (method i) or in a DNA marker test (method ii), if appropriate." (and to delete last sentence on method of observation)*<br>*Explanation: both a bio-assay and a DNA-marker test are always accepted. At Ad. 51 (ii) 8. is explained that a DNA marker test must confirm the declaration in the TQ, if not, a bio-assay should be performed.*<br><br>*Ad. 58*<br>*To read "Resistance to strain 0 to be tested in a bio-assay (method i) or in a DNA marker test (method ii), if appropriate." (and to delete last sentence on method of observation)*<br>*Explanation: both a bio-assay and a DNA-marker test are always accepted. At Ad. 58 (ii) 8. is explained that a DNA marker test must confirm the declaration in the TQ, if not, a bio-assay should be performed.*<br><br>*TWV: agreed* |
| Ad. 51 (ii)<br>Ad. 58 (ii)<br>(Ad. 48 was deleted- see paragraph 62 of this document) | - to clarify "often" (does not meet requirements for use of gene-specific marker model)<br>(e.g. in Ad. 48 (ii) to confirm whether under (ii) DNA marker test there are always resistance alleles present in Gene I2 to both race 0 (ex 1) and race 1 (ex 2).)<br>*Leading Expert:*<br>*Ad. 51 (ii)*<br>*To read "Resistance gene Tm2 gives resistance to ToMV. Gene Tm2 has two dominant resistance alleles: resistance allele Tm2 is always associated with resistance to strain 0 and 1, resistance allele $Tm2^2$ is always associated with resistance to strain 0, 1 and 2. The presence or absence of both resistance alleles can be detected by the co-dominant markers as described in Arens, P. et al (2010). Specific aspects:"*<br><br>*Ad. 58 (ii)*<br>*To read "Dominant resistance gene Sw-5 is always associated with resistance to TSWV strain 0. The presence or absence of the resistance allele can be detected by the co-dominant marker as described in Dianese, E.C. et al (2010). Specific aspects: "*<br><br>*TWV: agreed* |

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| Ad. 48 (ii) 4.2 | to check whether to add control varieties as example varieties in the table of characteristics<br>*Leading Expert: agreed*<br>*In order to be coherent, Ad. 51 (ii) 4.2 and Ad. 58 (ii) 4.2 should be modified as follows*<br>*Ad. 51 (ii) 4.2*<br>*homozygous allele for susceptibility tm2 present: Mobaci, Monalbo, Moneymaker*<br>*homozygous allele for resistance Tm2 present: Moperou*<br>*homozygous allele for resistance Tm2$^2$ present: Mocimor, Momor*<br>*51.1 strain 0, example varieties*<br>*absent [1] Monalbo, Moneymaker*<br>*present [9] Mobaci, Mocimor, Momor, Moperou*<br>*51.2 strain 1, example varieties*<br>*absent [1] Monalbo, Moneymaker*<br>*present [9] Mocimor, Momor, Moperou*<br>*51.3 strain 2, example varieties*<br>*absent [1] Monalbo, Moneymaker, Moperou*<br>*present [9] Mobaci, Mocimor, Momor*<br><br>*Ad. 58 (ii) 4.2*<br>*homozygous allele 1 for susceptibility present: Moneymaker*<br>*homozygous allele 2 for susceptibility present: Mountain Magic*<br>*homozygous allele for resistance present: Montealto*<br>*heterozygous (allele for resistance and allele 1 for susceptibility present): Bodar*<br>*58, example varieties*<br>*absent [1] Montfavet H 63.5, Moneymaker, Mountain Magic*<br>*present [9] Bodar, Montealto*<br>*(Explanation: Lisboa is not available anymore)*<br><br>*TWV: agreed, so to add extra example varieties to have controls and example varieties aligned between the characteristic and the method described in the Ad.* |
| Ad. 51 (i), 4. Footnotes | to indicate e-mail and web address of the institutions instead of personal e-mail addresses<br>*Leading Expert: to use matref@geves.fr and resistencias@inia.es*<br>*TWV: agreed* |
| Ad. 51 (ii) | Arens, P. et al (2010) to be added to 9. Literature<br>*TWV: agreed* |
| Ad. 51 (ii) 2 | to clarify that there are 3 alleles: 2 dominant ones for resistance and 1 susceptible<br>*Leading Expert: Tm2/2$^2$ (with two resistance alleles Tm2 and Tm2$^2$ and one susceptibility allele tm2)*<br>*TWV: agreed* |
| Ad. 51 (ii) 3.2 | to read “Assay 2 to check ~~susceptible or resistance~~ allele for susceptibility or resistance”<br>*TWV: agreed* |
| Ad. 51 (ii) 4.2 | to clarify allelic basis for resistance<br>*Leading Expert: See above, Ad. 51 (ii), where was asked for the meaning of ‘often’. Not to repeat at Ad. 51 (ii) 4.2.*<br>*TWV: agreed* |
| Ad. 51 (ii) 8. | to read “In case the DNA marker test result does not confirm the declaration in the TQ, a bio-assay should be performed to observe whether ~~the resistance is absent or present for~~ the variety is resistant ~~(~~on another mechanism like gene Tm1~~)~~.”<br>*TWV: agreed* |
| Ad. 51 (ii) | Table on test results (below 8.): to delete “~~(occurs incidentally)~~”<br>*TWV: agreed* |
| Ad. 58 (ii) | Dianese, E.C. *et al* (2010) to be added to 9. Literature<br>*TWV: agreed* |
| Ad. 58 (ii) 3. | to read<br>“~~Susceptible allele~~ Allele for susceptibility<br>~~Resistant allele~~ Allele for resistance”<br>*TWV: agreed* |
| Ad. 58 (ii) 8. | to read<br>“homozygous ~~susceptible~~ susceptibility allele 1 present<br>homozygous ~~susceptible~~ susceptibility allele 2 present<br>homozygous ~~resistant~~ resistance allele present:”<br>*TWV: agreed* |

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| Ad. 58 (ii) 8. | to read “In case the DNA marker test result does not confirm the declaration in the TQ, a bio-assay should be performed to observe whether ~~the resistance is absent or present for~~ the variety is resistant ~~(~~on another mechanism~~)~~.”<br>*TWV: agreed* |

5. The TWV, at its fifty-first session, held in Roelofarendsveen, Netherlands, from July 3 to 7, 2017, noted that, after adoption of the partial revision of the Test Guidelines for Tomato (see document TC/53/27), a need for clarification was identified with regard to the explanation Ad. 57 “Resistance to Tomato yellow leaf curl virus (TYLCV)”, (i) agroinoculation method. The TWV agreed to consider this issue during the discussions of the subsequent partial revisions for the Test Guidelines of Tomato (see document TWV/51/10) and the Test Guidelines of Tomato Rootstocks (see document TWV/51/11) (see document TWV/51/16 “Report”, paragraph 95).

65. The TWV, at its fifty-second session, agreed the following with regard to the relevant items of the partial revision of Ad. 57 “Resistance to Tomato yellow leaf curl virus (TYLCV)” (see document TWV/52/20 “Report”, paragraph 65):

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| Ad. 57 (i) 9.5 | to read “Glasshouse or climatic chamber with permission to confined use of LMO/GMO, confinement level 1 (N-1)” |
| Ad. 57 (i) 9.9 | to read “Permission to confined use of LMO/GMO, at least level 1 (N-1)” |
| Ad. 57 (i) 9.5, 9.9 | to add disclaimer as footnote to read “The transformed *Agrobacterium tumefaciens* is a living modified organism (LMO; or genetically modified organism (GMO)) and in many countries it requires to comply with Cartagena Protocol on Biosafety in case of transboundary movement, transit, handling and use that may have adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health.” |

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