

Technical Working Party for Vegetables

TWV/52/11

**Fifty-Second Session
Beijing, China, September 17 to 21, 2018**

Original: English
Date: September 4, 2018

MATTERS TO BE RESOLVED CONCERNING TEST GUIDELINES ADOPTED BY THE TECHNICAL COMMITTEE: PARTIAL REVISION OF THE TEST GUIDELINES FOR TOMATO

Document prepared by an expert from the Netherlands

Disclaimer: this document does not represent UPOV policies or guidance

1. The Enlarged Editorial Committee (TC-EDC), at its meeting held in Geneva, from March 26 to 27, 2018, considered a proposal for a partial revision of the Test Guidelines for Tomato (*Solanum lycopersicum* L.) (see document [TC-EDC/MAR18/8](#)) and agreed that the technical issues raised on the proposed partial revision of the Test Guidelines for Tomato should be addressed by the TWV (see document TC-ECD/MAR18/11 "Report", paragraph 57).
2. The following table presents all the comments made by the TC-EDC on the proposed partial revision of the Test Guidelines for Tomato (document TC-EDC/MAR18/8), including the technical issues, with the proposed responses by the Leading Expert, Ms. Amanda van Dijk (Netherlands).

General remark	Control varieties in the DNA-test should also be indicated in the bio-test. Why are the control varieties not used as example varieties? <i>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. 48 (ii) 4.2, Ad. 51 (ii) 4.2 and Ad. 58 (ii) 4.2.</i>
Chars. 48, 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.) - DNA marker test to be presented to the BMT to check whether method corresponds to TGP/15 <i>Leading Expert: I will participate in the BMT and the item will be discussed. I will report to the TWV accordingly</i>

<p>Ad. 48 Ad. 51 Ad. 58</p>	<p>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.) <i>Leading Expert:</i> <i>Ad. 48</i> <i>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).”</i> <i>Explanation:</i></p> <ul style="list-style-type: none"> • <i>A bio-assay is always accepted.</i> • <i>A DNA-marker test is always accepted for race 1 (ex 2). If the DNA marker test result shows presence of the susceptibility allele, no conclusion can be made for race 0 (ex 1).</i> <p><i>At Ad. 48 (ii) 8. is explained that a DNA marker test must confirm the declaration in the TQ, if not, a bio-assay should be performed.</i></p> <p><i>Ad. 51</i> <i>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.”</i> <i>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.</i></p> <p><i>Ad. 58</i> <i>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.”</i> <i>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.</i></p>
<p>Ad. 48 (ii) Ad. 51 (ii) Ad. 58 (ii)</p>	<p>- to clarify “often” (does not meet requirements for use of gene-specific marker model) (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).) <i>Leading Expert:</i> <i>Ad. 48 (ii)</i> <i>To read “Dominant resistance gene I2 is always associated with resistance to both race 0 (ex 1) and race 1 (ex 2). The presence or absence of the resistance allele can be detected by the co-dominant marker as described in this method.”</i></p> <p><i>Ad. 51 (ii)</i> <i>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 Tm2² 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: “</i></p> <p><i>Ad. 58 (ii)</i> <i>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: ”</i></p>
<p>Ad. 48 (i), 4. Footnotes</p>	<p>to indicate e-mail and web address of the institutions instead of personal e-mail addresses <i>Leading Expert: Valerie.grimault@geves.fr to be changed into <u>matref@geves.fr</u>. cardaba@inia.sp: no alternative available yet.</i></p>
<p>Ad. 48 (ii) 2.</p>	<p>to clarify meaning of “quarantine status” <i>Leading Expert: 48 (ii) 2 is not quarantine status, but ‘functional gene’. A gene never has a quarantine status. A DNA-test is not related to quarantine issues.</i></p>
<p>Ad. 48 (ii) 3.</p>	<p>to read “Susceptible allele Allele for susceptibility Resistant allele Allele for resistance” <i>Leading Expert: agreed</i></p>

Ad. 48 (ii) 4.2	<p>to check whether to add control varieties as example varieties in the table of characteristics <i>Leading Expert:</i> <i>Ad. 48 (ii) 4.2</i> <i>homozygous allele for susceptibility present: Marmande verte, Marporum, Moneymaker</i> <i>homozygous allele for resistance present: Motelle, Tradiro</i> <i>48.1 race 0 (ex 1), example varieties</i> <i>absent [1] Marmande verte, Moneymaker</i> <i>present [9] Marporum, Motelle, Tradiro</i> <i>48.2 race 1 (ex 2), example varieties</i> <i>absent [1] Marmande verte, Marporum, Moneymaker</i> <i>present [9] Motelle, Tradiro</i> <i>(Explanation: Anabel, Marsol, Walter are not available anymore)</i></p> <p><i>In order to be coherent, the same should be done in Ad. 51 (ii) 4.2 and Ad. 58 (ii) 4.2</i> <i>Ad. 51 (ii) 4.2</i> <i>homozygous allele for susceptibility tm2 present: Mobaci, Monalbo, Moneymaker</i> <i>homozygous allele for resistance Tm2 present: Moperou</i> <i>homozygous allele for resistance Tm2² present: Mocimor, Momor</i> <i>51.1 strain 0, example varieties</i> <i>absent [1] Monalbo, Moneymaker</i> <i>present [9] Mobaci, Mocimor, Momor, Moperou</i> <i>51.2 strain 1, example varieties</i> <i>absent [1] Monalbo, Moneymaker</i> <i>present [9] Mocimor, Momor, Moperou</i> <i>51.3 strain 2, example varieties</i> <i>absent [1] Monalbo, Moneymaker, Moperou</i> <i>present [9] Mobaci, Mocimor, Momor</i></p> <p><i>Ad. 58 (ii) 4.2</i> <i>homozygous allele 1 for susceptibility present: Moneymaker</i> <i>homozygous allele 2 for susceptibility present: Mountain Magic</i> <i>homozygous allele for resistance present: Montealto</i> <i>heterozygous (allele for resistance and allele 1 for susceptibility present): Bodar</i> <i>58, example varieties</i> <i>absent [1] Montfavet H 63.5, Moneymaker, Mountain Magic</i> <i>present [9] Bodar, Montealto</i> <i>(Explanation: Lisboa is not available anymore)</i></p>
Ad. 48 (ii) 8.	<p>48.1 reference to "absent" is missing (see 48.2). <i>Leading Expert: To add:</i> <i>absent [1] can not be concluded from the DNA-test, a bio-assay should be performed.</i></p>
Ad. 48 (ii) 8. 48.1 and 48.2	<p>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 <u>is resistant e.g. {on another mechanism like gene I3}</u>." <i>Leading Expert: agreed</i></p>
Ad. 51 (i), 4. Footnotes	<p>to indicate e-mail and web address of the institutions instead of personal e-mail addresses <i>Leading Expert: Valerie.grimault@geves.fr to be changed into matref@geves.fr.</i> <i>cardaba@inia.sp: no alternative available yet.</i></p>
Ad. 51 (ii)	<p>Arens, P. et al (2010) to be added to 9. Literature <i>Leading Expert: agreed</i></p>
Ad. 51 (ii) 2	<p>to clarify that there are 3 alleles: 2 dominant ones for resistance and 1 susceptible <i>Leading Expert: Tm2/2² (with two resistance alleles Tm2 and Tm2² and one susceptibility allele tm2)</i></p>
Ad. 51 (ii) 3.2	<p>to read "Assay 2 to check susceptible or resistance allele <u>for susceptibility or resistance</u>" <i>Leading Expert: agreed</i></p>
Ad. 51 (ii) 4.2	<p>to clarify allelic basis for resistance <i>Leading Expert: See above, Ad. 51 (ii), where was asked for the meaning of 'often'. Not to repeat at Ad. 51 (ii) 4.2.</i></p>
Ad. 51 (ii) 8.	<p>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 <u>is resistant e.g. {on another mechanism like gene Tm1}</u>." <i>Leading Expert: agreed</i></p>

Ad. 51 (ii)	Table on test results (below 8.): to delete " (occurs incidentally) " <i>Leading Expert: agreed</i>
Ad. 58 (ii)	Dianese, E.C. <i>et al</i> (2010) to be added to 9. Literature <i>Leading Expert: agreed</i>
Ad. 58 (ii) 3.	to read "Susceptible allele <u>Allele for susceptibility</u> Resistant allele <u>Allele for resistance</u> " <i>Leading Expert: agreed</i>
Ad. 58 (ii) 8.	to read "homozygous susceptible-susceptibility allele 1 present homozygous susceptible-susceptibility allele 2 present homozygous resistant <u>resistance</u> allele present." <i>Leading Expert: agreed</i>
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 <u>is resistant e.g.</u> (on another mechanism)." <i>Leading Expert: agreed</i>

[End of document]