|  |  |
| --- | --- |
|  | E |
| International Union for the Protection of New Varieties of Plants |  |

|  |  |
| --- | --- |
| Technical Working Party for VegetablesFifty-Second SessionBeijing, China, September 17 to 21, 2018 | TWV/52/11Original: EnglishDate: 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

 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](http://upov.int/meetings/en/doc_details.jsp?meeting_id=46070&doc_id=401237)) 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).

 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?*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.* |
| 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 *Leading Expert: I will participate in the BMT and the item will be discussed. I will report to the TWV accordingly* |
| Ad. 48Ad. 51Ad. 58 | 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.)*Leading Expert:* *Ad. 48**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).”* *Explanation:** *A bio-assay is always accepted.*
* *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).*

*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.**Ad. 51**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.”* *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.**Ad. 58**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.”* *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.* |
| Ad. 48 (ii)Ad. 51 (ii)Ad. 58 (ii) | - 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).)*Leading Expert:* *Ad. 48 (ii)**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.”**Ad. 51 (ii)**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: “**Ad. 58 (ii)**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: ”* |
| Ad. 48 (i), 4.Footnotes | to indicate e-mail and web address of the institutions instead of personal e-mail addresses*Leading Expert: Valerie.grimault@geves.fr to be changed into* *matref@geves.fr**.**cardaba@inia.sp**: no alternative available yet.* |
| Ad. 48 (ii) 2. | to clarify meaning of “quarantine status”*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.* |
| Ad. 48 (ii) 3. | to read “~~Susceptible allele~~ Allele for susceptibility~~Resistant allele~~ Allele for resistance”*Leading Expert: agreed* |
| Ad. 48 (ii) 4.2 | to check whether to add control varieties as example varieties in the table of characteristics*Leading Expert:* *Ad. 48 (ii) 4.2* *homozygous allele for susceptibility present: Marmande verte, Marporum, Moneymaker**homozygous allele for resistance present: Motelle, Tradiro**48.1 race 0 (ex 1), example varieties**absent [1] Marmande verte, Moneymaker**present [9] Marporum, Motelle, Tradiro**48.2 race 1 (ex 2), example varieties**absent [1] Marmande verte, Marporum, Moneymaker**present [9] Motelle, Tradiro**(Explanation: Anabel, Marsol, Walter are not available anymore)**In order to be coherent, the same should be done in Ad. 51 (ii) 4.2 and Ad. 58 (ii) 4.2**Ad. 51 (ii) 4.2**homozygous allele for susceptibility tm2 present: Mobaci, Monalbo, Moneymaker**homozygous allele for resistance Tm2 present: Moperou**homozygous allele for resistance Tm22 present: Mocimor, Momor**51.1 strain 0, example varieties**absent [1] Monalbo, Moneymaker**present [9] Mobaci, Mocimor, Momor, Moperou**51.2 strain 1, example varieties**absent [1] Monalbo, Moneymaker**present [9] Mocimor, Momor, Moperou**51.3 strain 2, example varieties**absent [1] Monalbo, Moneymaker, Moperou**present [9] Mobaci, Mocimor, Momor**Ad. 58 (ii) 4.2**homozygous allele 1 for susceptibility present: Moneymaker**homozygous allele 2 for susceptibility present: Mountain Magic**homozygous allele for resistance present: Montealto**heterozygous (allele for resistance and allele 1 for susceptibility present): Bodar**58, example varieties**absent [1] Montfavet H 63.5, Moneymaker, Mountain Magic**present [9] Bodar, Montealto**(Explanation: Lisboa is not available anymore)* |
| Ad. 48 (ii) 8. | 48.1 reference to “absent” is missing (see 48.2).*Leading Expert: To add:**absent [1] can not be concluded from the DNA-test, a bio-assay should be performed.*  |
| Ad. 48 (ii) 8.48.1 and 48.2 | 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 e.g. ~~(~~on another mechanism like gene I3~~)~~.” *Leading Expert: agreed* |
| Ad. 51 (i), 4.Footnotes | to indicate e-mail and web address of the institutions instead of personal e-mail addresses*Leading Expert: Valerie.grimault@geves.fr to be changed into* *matref@geves.fr**.**cardaba@inia.sp**: no alternative available yet.* |
| Ad. 51 (ii) | Arens, P. et al (2010) to be added to 9. Literature*Leading Expert: agreed* |
| Ad. 51 (ii) 2 | to clarify that there are 3 alleles: 2 dominant ones for resistance and 1 susceptible*Leading Expert: Tm2/22 (with two resistance alleles Tm2 and Tm22 and one susceptibility allele tm2)* |
| Ad. 51 (ii) 3.2 | to read “Assay 2 to check ~~susceptible or resistance~~ allele for susceptibility or resistance”*Leading Expert: agreed* |
| Ad. 51 (ii) 4.2 | to clarify allelic basis for resistance *Leading Expert: See above, Ad. 51 (ii), where was asked for the meaning of ‘often’. Not to repeat at Ad. 51 (ii) 4.2.* |
| 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 e.g. ~~(~~on another mechanism like gene Tm1~~)~~.” *Leading Expert: agreed* |
| Ad. 51 (ii) | Table on test results (below 8.): to delete “~~(occurs incidentally)~~”*Leading Expert: agreed* |
| Ad. 58 (ii) | Dianese, E.C. *et al* (2010) to be added to 9. Literature*Leading Expert: agreed* |
| Ad. 58 (ii) 3. | to read “~~Susceptible allele~~ Allele for susceptibility~~Resistant allele~~ Allele for resistance”*Leading Expert: agreed* |
| Ad. 58 (ii) 8. | to read “homozygous ~~susceptible~~ susceptibility allele 1 presenthomozygous ~~susceptible~~ susceptibility allele 2 presenthomozygous ~~resistant~~ resistance allele present:” *Leading Expert: agreed* |
| 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 e.g. ~~(~~on another mechanism~~)~~.” *Leading Expert: agreed* |

[End of document]