



TWF/45/31 Rev.  
ORIGINAL: English  
DATE: November 7, 2014

**INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS**  
Geneva

**TECHNICAL WORKING PARTY FOR FRUIT CROPS**

**Forty-Fifth Session**  
**Marrakesh, Morocco, from May 26 to 30, 2014**

REVISION TO DOCUMENT TWF/45/31

PARTIAL REVISION OF THE TEST GUIDELINES FOR  
MANDARINS (CITRUS L.-GROUP 1) (DOCUMENT TG/201/1)

*Document prepared by an expert from the European Union*

1. This document contains the presentation made by an expert from the European Union with regard to the partial revision of the Test Guidelines for Mandarin (TG/201/1) and the report on developments for the ring test concerning the proposed new characteristic "Fruit: number of seeds (controlled manual cross-pollination)".
2. Copies of the presentations made at the forty-fifth session of the Technical Working Party for Fruit Crops (TWF) by the participants at the subgroup are reproduced in documents TWF/45/31 Add. and TWF/45/31 Add.2 Rev.

[Annex follows]



# Proposal for a partial revision of the test guidelines for mandarin (citrus, Group 1)

**TWF, Marrakech, 28 May 2014**



## The Situation

## Revision of the mandarin guideline

- Mandarin test guidelines were adopted in 2003
- Since then, problems occurred in varieties supposed to be seedless with the presence of seeds derived from unwanted cross pollination with other neighboring plantations



## Revision of the mandarin guideline

- Breeding programs have developed in order to improve the situation with 2 kinds of methodologies:
  - triploid varieties (sterile pollen)
  - irradiation of varieties to reduce their fertility.  
Irradiated varieties have a reduced ovule fertility and produce no seeds independently from pollinators that might be present in the vicinity



## Revision of the mandarin guideline

- Proposal for a partial revision of the test guideline in order to address these new types:
  - update characteristic 25 '*Anther viable pollen*', currently with two states of expression, 'Absent' – 'Present' where differences observed in the pollen germination percentage cannot be reflected with only two states. Proposal to move to a quantitative characteristic.
  - Proposal not contested
  - First part of document TWF/45/30



## Revision of the mandarin guideline

- Proposal for a partial revision of the test guideline in order to address these new types:
  - to introduce a new characteristic to evaluate the ovule fertility by cross pollination with another variety or species: '*Fruit: number of seeds (controlled manual cross-pollination)*'
  - Proposal that needs further investigations



## Revision of the mandarin guideline

- The TWF agreed in 2011 that
  - It should be checked whether this characteristic is eligible as a UPOV characteristic
  - The methodology for observing this characteristic should be well defined and tested
  - The wording of the characteristic might need to be reviewed



## Revision of the mandarin guideline

- The TWF designed a subgroup
  - Morocco
  - South Africa
  - Spain
  - Coordination by the CPVO



## Revision of the mandarin guideline

- The subgroup agreed on a protocol drafted on the basis of the Spanish proposal and after comments of other subgroup members in order to test the methodology for the assessment of the characteristic in question
- Work in the field started in March 2012



**CPVO**  
Community Plant Variety Office

## The ring test proposal

## Revision of the mandarin guideline

- Proposal that the number of seeds is observed:
  - in counting the maximum number of seeds obtained after pollination with a range of good pollinators
  - under well described agroclimatic and pollen donor conditions
  - the pollination is made each time with pollen of a single pollinator rather than with a pollen mixture
    - The composition of which could be the subject of variation



## Revision of the mandarin guideline

- For the purpose of the ring test, identification of varieties to be used as pollinators (male) and as receptors (female) available for all partners
  - Possibility to draw a pollination table
  - Comparison of the consistency of results
  - At the end of the ring test, conclusion whether the characteristic can be reliably assessed or not



## Revision of the mandarin guideline

- The pollination table

		POLLINATOR	
		'Nova'	'Nadorcott'
Female	'Marisol'		
	'Clemenules' = 'Nules'		
	'Nadorcott'		
	'Nova'		



**CPVO**  
Community Plant Variety Office

## Outcome of the 2013 TWF



## Revision of the mandarin guideline

- 70. Some countries felt that the results as presented so far are sufficient to approve this characteristic as fulfilling the UPOV definition of a characteristic, that a clear methodology could be set up and that they will at national level already use this characteristic in their protocol.
- 71. Other countries found that it is premature to take a decision at this stage and that a second year is necessary, especially in order to establish the repeatability of this characteristic and because the results are deemed to be incomplete.
- 73. The TWF agreed that the decision as to the suitability of this characteristic for the purpose of inclusion in the UPOV guidelines is expected after the results of the second year are known.



**CPVO**

Community Plant Variety Office

## Results and conclusions

## Revision of the mandarin guideline

- Results and conclusions from ES (TWF/45/30, second part)
- Results and conclusions from MA
- Results and conclusions from ZA



## Revision of the mandarin guideline

- Conclusion
  - On the basis of the results of the ring test
    - MO, is of the opinion that the characteristic '*Fruit: number of seeds (controlled manual cross-pollination)*' does not fulfill the requirements for UPOV characteristic since it is not sufficiently repeatable
    - ES & ZA are of the opinion that the characteristic '*Fruit: number of seeds (controlled manual cross-pollination)*' does fulfill the requirements for a UPOV characteristic with the methodology defined in the ring test
  - No consensus to modify characteristic 99 or to add a new characteristic 98
  - No modification of TG/201/1 in respect of characteristic 99 or addition of a new characteristic 98



## Revision of the mandarin guideline

- Presentation of the procedure for additional characteristics (UPOV Office)



## Revision of the mandarin guideline

- Conclusion
  - The working party takes note of the consensus to amend characteristic 25 and decides to propose the partial modification of the mandarin guideline in this respect to the TC
  - The working party takes note of the absence of consensus for further amendment of the guideline. As a consequence, no further amendment is proposed



## Revision of the mandarin guideline

- Conclusion
  - The working party takes note of the declaration by the ES authorities of the use at National level of the characteristic 'Fruit: number of seeds (manual pollination)' as a QN characteristic with a range of stages of expression from 1 to 9
  - The methodology is described in the ring test protocol, with in particular:
    - ✓ 'Nadorcott' as a pollinator
    - ✓ A pollination one day after anthesis
  - The working party takes note of the intention of the ES authorities to notify the utilisation of this characteristic at National level as an additional characteristic to the office of the Union as explained in document TGP 5 section 10.
  - The group takes note of the reservations from MO as to the utilisation of this characteristic in the absence of consensus.



Thank you for your attention



[End Annex and of document]