

Test Guidelines for Mandarin/Citrus L. (Group 1): TG/201/1
Additional Characteristic(s)

Submitting Authority:	SPAIN	Contact Expert: Name:	Maria Teresa MARES ANDRÉS
Date:	02/07/2014	Organization:	UNIDAD DE EXAMEN TÉCNICO DE IDENTIFICACIÓN VARIETAL, OFICINA ESPAÑOLA DE VARIEDADES VEGETALES, MINISTERIO DE AGRICULTURA, ALIMENTACIÓN Y MEDIO AMBIENTE
		Tel.:	00 34 963424186
		E-mail:	MARES_TER@GVA.ES

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
MS	Fruit: number of seeds (controlled manual crosspollination)	Fruit: nombre de pépins (allogamie manuelle contrôlée)	Frucht : Anzahl Samen (manuelle kontrollierte Fremdbefruchtung)	Fruto: número de semillas (alógama manual controlada)		
QN	absent or very few	absents ou très peu nombreux	fehlend oder sehr gering	ausentes o muy bajo	Okitsu (SAT)	1
	few	peu nombreux	gering	bajo	Nulesin (CLE)	3
	medium	moyen	mittel	medio	Esbal (CLE)	5
	many	nombreux	groß	alto	Primosole (HMA)	7
	very many	très nombreux	sehr groß	muy alto	Clemenules (CLE)	9

- [i] indicate type of expression (QL, PQ, QN)
 [ii] indicate method of observation (VG, VS, MG, MS)
 [iii] example varieties to be provided for at least 2 states.

Explanation:

Method: 10 flowers should be observed on each tree. The 10 flowers should be protected from pollination by use of an individual mesh on each flower. Manual cross-pollination of the 10 flowers should be done with pollen from a variety with a high fertilization capability, such as 'Fortune', 'Ellendale', 'Nadorcott', 'Nova' or 'Common mandarin (Willowleaf, Mediterranean)'.

Range of counts for each of the states when pollinator is "Fortune":

Example varieties	Note	Range
Okitsu (SAT)	1	≤ 3
	2	$> 3 \leq 6$
Nulessin (CLE)	3	$> 6 \leq 9$
	4	$> 9 \leq 11$
Esbal (CLE)	5	$> 11 \leq 15$
	6	$> 15 \leq 17$
Primosole (HMA)	7	$> 17 < 20$
	8	$> 20 < 23$
Clemenules (HMA)	9	≥ 23

Procedure for hand pollination:

Conditions of the pollen of the donor

- Pollen from male varieties will be at its optimal fertility
- The pollen of the pollinator variety is extracted at the moment of maximum development of the flower, before the anther dehiscence. Open flowers at a growth stage of 61-62 on the Citrus BBCH phenological scale [Agust and al., 1997] will be randomly selected for pollen collection at least the day before pollination. Anthers are put in petri-dishes at room temperature with a dehydrator (e.g. a piece of paper) until they open.

Conditions of the female flowers:

- Flowers will be fully developed but not yet opened: one day before anthesis (stage 59 on the Citrus BBCH phenological scale [Agust and al., 1997]), flowers will be emasculated and bagged to avoid self and free pollination.
- Stigma of female varieties will be at its optimum stage of receptivity
- Trees will be at the phenologic state of full bloom

Agroclimatic conditions:

- Wet days are not suitable and the temperature should be above 20°

Methodology of hand pollination:

- Pollination should take place at the moment of maximum development of the flower.
- Quantity of pollen: to reach the saturation of the stigma, at least 100 grains of pollen
- Pollen will be applied by a brush
- After pollination, the pollinated flowers should be isolated from the environment with an individual mesh in order to avoid further pollination