

PROTOCOL FOR DISTINCTNESS, UNIFORMITY AND STABILITY TESTS

***Prunus dulcis* (Mill.) D.A. Webb
(synonym: *Prunus amygdalus* Batsch)**

ALMOND

UPOV Code: PRUNU_DUL

Adopted on 28/11/2012

Entry into force on 01/01/2011

I SUBJECT OF THE PROTOCOL

The protocol describes the technical procedures to be followed in order to meet the Council Regulation (EC) N°2100/94 on Community Plant Variety Rights. The technical procedures have been agreed by the Administrative Council and are based on general UPOV Document TG/1/3 and UPOV Guideline TG/56/4 dated 20/10/2011 for the conduct of tests for Distinctness, Uniformity and Stability. This protocol applies to all varieties of ***Prunus dulcis (Mill.) D.A. Webb.***

II SUBMISSION OF PLANT MATERIAL

1. The Community Plant Variety Office (CPVO) is responsible for informing the applicant of

- the closing date for the receipt of plant material;
- the minimum amount and quality of plant material required;
- the examination office to which material is to be sent.

A sub-sample of the material submitted for test will be held in the variety collection as the definitive sample of the candidate variety.

The applicant is responsible for ensuring compliance with any customs and plant health requirements.

2. Final dates for receipt of documentation and material by the Examination Office

The final dates for receipt of requests, technical questionnaires and the final date or submission period for plant material will be decided by the CPVO and each Examination Office chosen.

The Examination Office is responsible for immediately acknowledging the receipt of requests for testing, and technical questionnaires. Immediately after the closing date for the receipt of plant material the Examination Office should inform the CPVO whether acceptable plant material has been received or not. However if unsatisfactory plant material is submitted the CPVO should be informed as soon as possible.

3. Plant material requirements

Information with respect to closing dates and submission requirements of plant material for technical examination of varieties can be found on the CPVO website (www.cpvo.europa.eu) in the S2 Gazette.

Quality of plants: Should not be less than the standards laid down in Council Directives 77/93/EEC and 92/34 EEC and their implementing measures.

Chemical treatment: The plant material must not have undergone any treatment unless the CPVO and the examination office allow or request such treatment. If it has been treated, full details of the treatment must be given.

Labelling of sample:

- Species
- File number of the application allocated by the CPVO
- Breeder's reference
- Examination reference (if known)
- Name of applicant
- The phrase «On request of the CPVO»

III CONDUCT OF TESTS

1. Variety collection

A variety collection will be maintained for the purpose of establishing distinctness of the candidate varieties in test. A variety collection may contain both living material and descriptive information. A variety will be included in a variety collection only if plant material is available to make a technical examination.

Pursuant to Article 7 of Council Regulation (EC) No. 2100/94, the basis for a collection should be the following:

- varieties listed or protected at the EU level or at least in one of the EEA Member States;
- varieties protected in other UPOV Member States;
- any other variety in common knowledge.

The composition of the variety collection in each Examination Office depends on the environmental conditions in which the Examination Office is located.

Variety collections will be held under conditions which ensure the long term maintenance of each accession. It is the responsibility of Examination Offices to replace reference material which has deteriorated or become depleted. Replacement material can only be introduced if appropriate tests confirm conformity with the existing reference material. If any difficulties arise for the replacement of reference material, Examination Offices must inform the CPVO. If authentic plant material of a variety cannot be supplied to an Examination Office the variety will be removed from the variety collection.

2. Material to be examined

Candidate varieties will be directly compared with other candidates for Community plant variety rights tested at the same Examination Office, and with appropriate varieties in the variety collection. When necessary an Examination Office may also include other candidates and varieties. Examination Offices should therefore make efforts to coordinate the work with other Offices involved in DUS testing of almond. There should be at least an exchange of technical questionnaires for each candidate variety, and during the test period, Examination Offices should notify each other and the CPVO of candidate varieties which are likely to present problems in establishing distinctness. In order to solve particular problems Examination Offices may exchange plant material.

3. Characteristics to be used

The characteristics to be used in DUS tests and preparation of descriptions shall be those referred to in the Annex 1. All the characteristics shall be used, providing that observation of a characteristic is not rendered impossible by the expression of any other characteristic, or the expression of a characteristic is prevented by the environmental conditions under which the test is conducted. In the latter case, the CPVO should be informed. In addition the existence of some other regulation e.g. plant health, may make the observation of the characteristic impossible.

The Administrative Council empowers the President, in accordance with Article 23 of Commission Regulation (EC) No. 874/2009, to insert additional characteristics and their expression in respect of a variety.

4. Grouping of varieties

The varieties and candidates to be compared will be divided into groups to facilitate the assessment of distinctness. Characteristics which are suitable for grouping purposes are those which are known from experience not to vary, or to vary only slightly, within a variety and which in their various states of expression are fairly evenly distributed throughout the collection. In the case of continuous grouping characteristics overlapping states of expression between adjacent groups is required to reduce the risks of incorrect allocation of candidates to groups. The characteristics which could be used for grouping are the following:

- a) Tree: distribution of flower buds (characteristic 8)
- b) Fruit: size (characteristic 27)
- c) Stone: resistance to cracking (characteristic 37)
- d) Time of beginning of flowering (characteristic 43)
- e) Time of harvest (characteristic 44)

5. Trial designs and growing conditions

The minimum duration of tests will normally include at least two satisfactory crops of fruit. Tests will be carried out under conditions ensuring normal growth. The size of the plots will be such that plants or parts of plants may be removed for measuring and counting without prejudice to the observations which must be made up to the end of the growing period.

The test design is as follows

Each test should include 5 plants.

Unless otherwise stated, all observations should be made on 5 plants or parts taken from each of 5 plants. In the case of observations of parts, the number of parts taken from each of the plants should be 2.

6. Special tests

In accordance with Article 83(3) of Council Regulation (EC) No 2100/94 an applicant may claim either in the Technical Questionnaire or during the test that a candidate has a characteristic which would be helpful in establishing distinctness. If such a claim is made and is supported by reliable technical data, a special test may be undertaken providing that a technically acceptable test procedure can be devised.

Special tests will be undertaken, with the agreement of the President of CPVO, where distinctness is unlikely to be shown using the characteristics listed in the protocol.

7. Standards for decisions

a) **Distinctness**

A candidate variety will be considered to be distinct if it meets the requirements of Article 7 of Council Regulation (EC) No. 2100/94.

b) **Uniformity**

For the assessment of uniformity a population standard of 1% and an acceptance probability of 95% should be applied.

For a sample size of 5 plants, no off-types are allowed.

c) **Stability**

A candidate will be considered to be sufficiently stable when there is no evidence to indicate that it lacks uniformity.

IV REPORTING OF RESULTS

After each recording season the results will be summarised and reported to the CPVO in the form of a UPOV model interim report in which any problems will be indicated under the headings distinctness, uniformity and stability. Candidates may meet the DUS standards after two fruiting periods but in some cases three fruiting periods may be required. When tests are completed the results will be sent by the Examination Office to the CPVO in the form of a UPOV model final report.

If it is considered that the candidate complies with the DUS standards, the final report will be accompanied by a variety description in the format recommended by UPOV. If not, the reasons for failure and a summary of the test results will be included with the final report.

The CPVO must receive interim reports and final reports by the date agreed between the CPVO and the examination office.

Interim reports and final examination reports shall be signed by the responsible member of the staff of the Examination Office and shall expressly acknowledge the exclusive rights of disposal of CPVO.

The interim report as well as the final report shall be sent by the Examination Office to the CPVO.

V LIAISON WITH THE APPLICANT

If problems arise during the course of the test the CPVO should be informed immediately so that the information can be passed on to the applicant. Subject to prior agreement, the applicant may be directly informed at the same time as the CPVO particularly if a visit to the trial is advisable.

VI ENTRY INTO FORCE

The present protocol enters into force on **01/01/2011**. Any ongoing DUS examination of candidate varieties started before the aforesaid date will not be affected by the approval of the revised Technical Protocol. Technical examinations of candidate varieties are carried out according to the TP in force when the DUS test starts. The starting date of a DUS examination is considered to be the due date for submitting of plant material for the first test period.

In cases where the Office requests to take-over a DUS report for which the technical examination has either been finalized or which is in the process to be carried out at the moment of this request, such report can only be accepted if the technical examination has been carried out according to the CPVO TP which was in force at the moment when the technical examination started.

ANNEXES TO FOLLOW

ANNEX I	<u>PAGE</u>
Table of characteristics	7
Legend:	
(*) UPOV asterisked characteristic	
(+) See Explanation on the Table of Characteristics	
(a)-(d) See Explanations on the Table of Characteristics	
G Grouping characteristics	
<u>Types of expression of characteristics:</u>	
QL Qualitative characteristic	
QN Quantitative characteristic	
PQ Pseudo-qualitative characteristic	
<u>Type of observation of characteristics:</u>	
MG Single measurement of a group of plants or parts of plants	
MS Measurement of a number of individual plants or parts of plants	
VG Visual assessment by a single observation of a group of plants or parts of plants	
VS Visual assessment by observation of individual plants or parts of plants	
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ANNEX I

TABLE OF CHARACTERISTICS

CPVO N°	UPOV N°	Stage, method	Characteristics	Examples	Note
1.	1. (*)	VG	Tree: vigour		
(+)	(+)		weak	Marcona, Tuono, Uhm L Fahem	3
QN	QN		medium	Nonpareil	5
			strong	Barte, Flour en bas, Peerless	7
2.	2. (*)	VG	Tree: habit		
(+)	(+)		upright	Fournat de Brezenaud	1
PQ	PQ		upright to spreading	Ferragnes	2
			spreading	Nec Plus Ultra	3
			drooping	Primorskii, Uhm L Fahem	4
3.	3. (*)	VG	Tree: texture of bark		
QN	QN		smooth	Barte, Volcani 5	1
			moderately cracked		2
			strongly cracked	Ferragnes	3
4.	4.	VG	One-year-old shoot: thickness		
QN	QN		thin	Ai	3
			medium	Nonpareil	5
			thick	Primorskii, Texas	7
5.	5. (*)	VG	One-year-old shoot: anthocyanin coloration		
(+)	(+)	(a)	absent or very weak		1
QN	QN		weak	Desmayo Largueta	3
			medium	Barte, Nonpareil	5
			strong	Ferragnes, Marcona, Texas	7

CPVO N°	UPOV N°	Stage, method	Characteristics	Examples	Note
6.	6. (*)	VG	Shoot: feathering		
(+)	(+)		absent or very weak	Barte	1
QN	QN		weak	Texas	2
			medium	Desmayo Larguerta	3
			strong	Marcona	4
			very strong	Ai	5
7.	7.	VG	Tree: density of foliage		
QN	QN		sparse	Fournat de Brezenaud	3
			medium	Nonpareil	5
			dense	Peerless	7
8.	8. (*)	VG	Tree: distribution of flower buds		
QN	QN		predominantly on spurs	Cristomorto	1
			equally on spurs and one-year-old shoots	Ferragnes	2
G			predominantly on one-year-old shoots	Nonpareil	3
9.	9. (*)	MS/MG	Leaf blade: length		
QN	QN	(a)	short	Ai	3
			medium	Primorskii	5
			long	Barte	7
10.	10. (*)	MS/MG	Leaf blade: width		
QN	QN	(a)	narrow	Ai	3
			medium	Nec Plus Ultra	5
			broad	Barte	7
11.	11. (*)	MS	Leaf: ratio length/width		
QN	QN	(a)	slightly elongated	Volcani 5	3
			moderately elongated	Nec Plus Ultra, Texas	5
			very elongated	Nonpareil	7

CPVO N°	UPOV N°	Stage, method	Characteristics	Examples	Note
12.	12. (*)	VG	Leaf blade: intensity of green colour		
QN	QN	(a)	light	Barte	3
			medium	Nonpareil	5
			dark	Texas	7
13.	13. (*)	VG	Leaf blade: incisions of margin		
(+)	(+)	(a)	serrate		1
QL	QL		crenate	Texas	2
14.	14. (*)	MS/VG	Petiole: length		
QN	QN	(a)	short	Ferragnes	3
			medium	Primorskii	5
			long	Peerless	7
15.	15. (*)	VG	Flower bud: shape		
(+)	(+)	(a)	triangular	Ai	1
PQ	PQ		ovate	Desmayo Largueta	2
			circular	Cristomorto	3
16.	16. (*)	VG	Flower bud: colour of tip of petals		
(+)	(+)	(a)	white	Ardechoise	1
PQ	PQ		pink	Barte, Marcona	2
			red	Ai, Trel	3
17.	17. (*)	VG	Flower bud: colour of sepals		
PQ	PQ	(a)	green	Cristomorto	1
			brown	Tuono	2
			red	Desmayo Largueta	3

CPVO N°	UPOV N°	Stage, method	Characteristics	Examples	Note
18.	18.	VG	Flower bud: pubescence of sepals		
QN	QN	(a)	absent or very weak	Marcona	1
			weak	Ardechoise	2
			medium	Barte	3
			strong		4
			very strong		5
19.	19. (*)	MS/VG	Flower: diameter		
QN	QN	(b)	small	Uhm L Fahem	3
			medium	Peerless	5
			large	Nec Plus Ultra	7
20.	20. (*)	VG	Petal: shape		
(+)	(+)	(b)	narrow elliptic	Volcani 5	1
PQ	PQ		medium elliptic	Butte	2
			circular	Texas Mission	3
			rhombic	Uhm L Fahem	4
21.	21. (*)	VG	Petal: colour of inner side		
PQ	PQ	(b)	white	Barte	1
			light pink	Ai	2
			medium pink	Marcona	3
			dark pink	Trell	4
22.	22.	VG	Petal: undulation of margin		
QN	QN	(b)	absent or very weak	Carmel	1
			weak	Butte	2
			medium	Nec Plus Ultra	3
			strong	Texas Mission	4
			very strong		5

CPVO N°	UPOV N°	Stage, method	Characteristics	Examples	Note
23.	23.	VG	Flower: number of stamens		
QN	QN		few	Cristomorto	1
			medium	Ai	2
			many	Barte	3
24.	24. (*)	VG	Stamen: anthocyanin coloration of filament		
QN	QN	(b)	absent or weak	Price	1
			moderate	Nonpareil	2
			strong	Texan Mission	3
25.	25. (*)	VG	Stigma: position in relation to anthers		
QN	QN	(b)	below	Drake	1
			same level	Nec Plus Ultra	2
			above	Desmayo Langueta	3
26.	26.	VG	Stigma: size		
QN	QN	(b)	small	Desmayo Langueta	1
			medium		2
			large	Ai	3
27.	27. (*)	VG	Fruit: size		
QN	QN	(c)	very small		1
			small	Texas	3
			medium	Nonpareil	5
			large	Ardechoise	7
G			very large	Barte	9
28.	28. (*)	VG	Fruit: shape (in lateral view)		
(+)	(+)	(c)	ovate	Marcona	1
PQ	PQ		elliptic	Ai	2
			circular	Nec Plus Ultra	3
			obovate	Ardechoise	4

CPVO N°	UPOV N°	Stage, method	Characteristics	Examples	Note
29.	29. (*)	VG	Fruit: shape of apex		
(+)	(+)	(c)	acute	Carmel	1
PQ	PQ		obtuse	Price	2
			rounded	Texas Mission	3
30.	30. (*)	VG	Fruit: pubescence		
QN	QN	(c)	sparse		1
			medium	Desmayo Langueta	2
			dense	Ferraduel	3
31.	31. (*)	MS/VG	Stone: length		
QN	QN	(d)	short	Texas Mission	3
			medium	Nec Plus Ultra	5
			long	Peerless	7
32.	32. (*)	MS/VG	Stone: width (in lateral view)		
QN	QN	(d)	narrow	Price	3
			medium	Nec Plus Ultra	5
			broad	Peerless	7
33.	33. (*)	MS/VG	Stone: ratio length/width in lateral view		
QN	QN	(d)	compressed		1
			medium		2
			elongated		3
34.	34. (*)	VG	Stone: shape (in lateral view)		
(+)	(+)	(d)	ovate	Marcona, Montrone	1
PQ	PQ		elliptic	Catuccia	2
			circular	Nonpareil	3
			obovate	Nec Plus Ultra	4

CPVO N°	UPOV N°	Stage, method	Characteristics	Examples	Note
35.	35.	VG	Stone: shape of apex		
(+)	(+)	(d)	acute	Tétényi bőtermő	1
PQ	PQ		obtuse		2
			rounded	Marcona	3
36.	36. (*)	VG	Stone: thickness of endocarp		
QN	QN	(d)	thin	Nonpareil	1
			medium	Ferragnes	2
			thick	Barte	3
37.	37. (*)	VG	Stone: resistance to cracking		
(+)	(+)	(d)	absent or very weak	Nonpareil	1
QN	QN		weak	Princess	2
			medium	Texas	3
			strong	Desmayo Largueta	4
G			very strong	Barte	5
38.	38. (*)	VG	Stone: keel development		
(+)	(+)	(d)	weak	Marcona, Peerless	3
QN	QN		medium	Nec Plus Ultra	5
			strong	Nonpareil, Budatétényi 1	7
39.	39. (*)	VG	Kernel: size		
QN	QN		very small	Kapareil	1
			small	Texas	3
			medium	Nonpareil	5
			large	Ferragnes	7
			very large	Barte	9

CPVO N°	UPOV N°	Stage, method	Characteristics	Examples	Note
40.	40. (*)	VG	Kernel: intensity of brown colour		
(+)	(+)		light	Nonpareil	1
QN	QN		medium		2
			dark		3
41.	41. (*)		Kernel: rugosity of surface		
QN	QN		weak	Texas Mission	1
			medium	Uhm L Fahem	3
			strong	Carmel	5
42.	42. (*)	VG	Time of leaf bud burst in relation to beginning of flowering		
QN	QN		earlier	Cavaliere	1
			same	Ferragnes	2
			later	Texas	3
43.	43. (*)	MG	Time of beginning of flowering		
(+)	(+)		very early	Uhm L Fahem	1
QN	QN		early		3
			medium	Nec Plus Ultra	5
			late		7
G			very late	Peerless	9
44.	44. (*)	VG	Time of harvest		
(+)	(+)		very early	Cavaliere, Uhm L Fahem	1
QN	QN		early	Nec Plus Ultra	3
			medium	Ferragnes	5
			late	Marcona	7
G			very late	Texas	9

EXPLANATIONS AND METHODS

Explanations covering several characteristics

Characteristics containing the following key in the third column of the Table of Characteristics should be examined as indicated below:

- a) Observations should be made at the central third of the shoot. The observations on the leaves should be made on mature leaves from current season's shoots.
- b) Observations should be made at the time of full flowering.
- c) Observations should be made approximately 3 months after full flowering.
- d) Observations should be made after splitting or cracking of the flesh of the fruit.

Explanations for individual characteristics

Ad. 1: Tree: vigour

The vigour of the tree is observed as the overall abundance of vegetative growth.

Ad. 2: Tree: habit



1
upright



2
upright to spreading



3
spreading



4
drooping

Ad. 5: One-year-old shoot: anthocyanin coloration

The anthocyanin coloration should be observed on the sunny side of the one-year-old shoot.

Ad. 6: Shoot: feathering

"Feathering" is the presence of secondary shoots on current year's shoots.

Ad. 13: Leaf blade: incisions of margin



1
serrate



2
crenate

Ad. 15: Flower bud: shape



1
triangular



2
ovate



3
circular

Ad. 16: Flower bud: colour of tip of petals

The colour of the tip of the petals should be observed just before opening.

Ad. 20: Petal: shape



1
narrow elliptic



2
medium elliptic



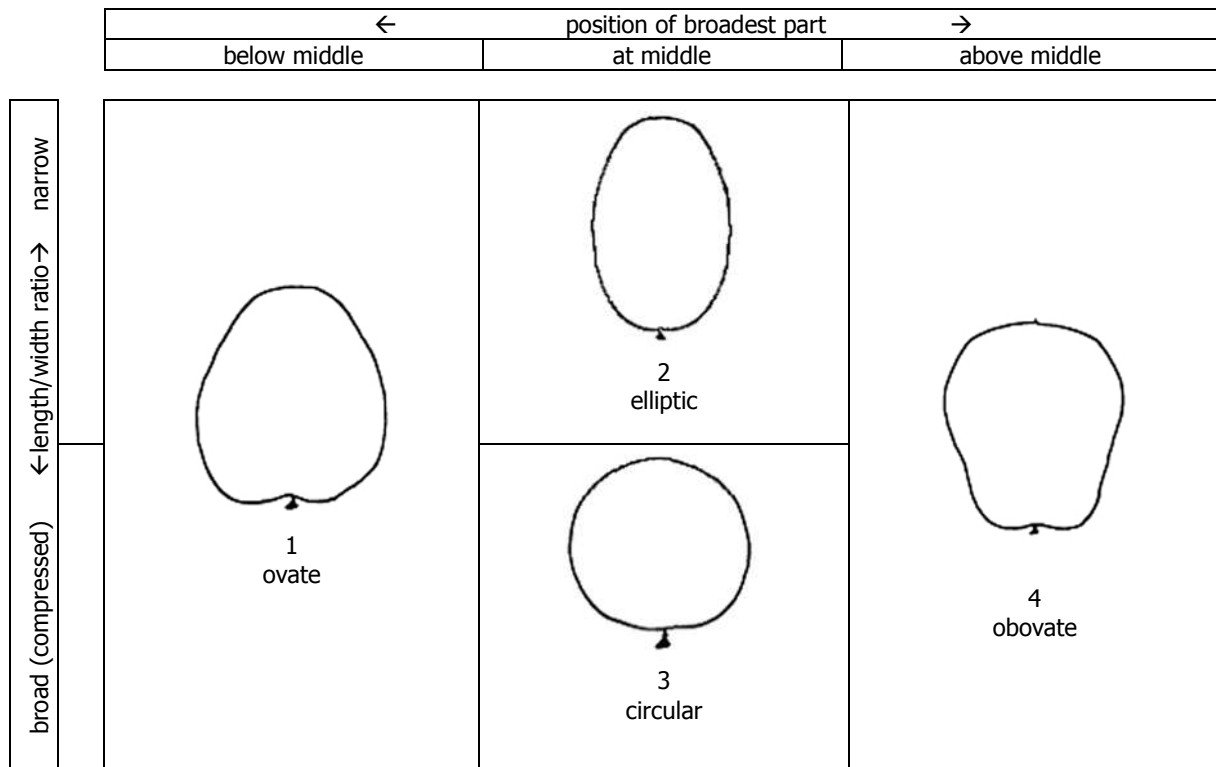
3
circular



4
rhombic

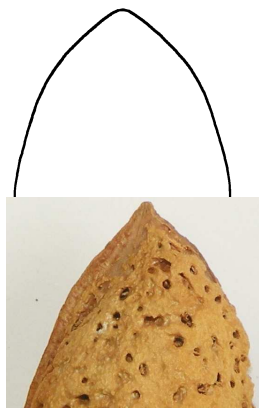
Ad. 28: Fruit: shape (in lateral view)

Ad. 34: Stone: shape (in lateral view)

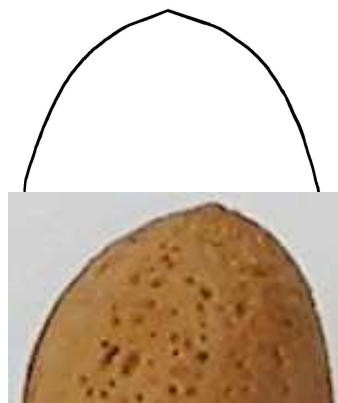


Ad. 29: Fruit: shape of apex

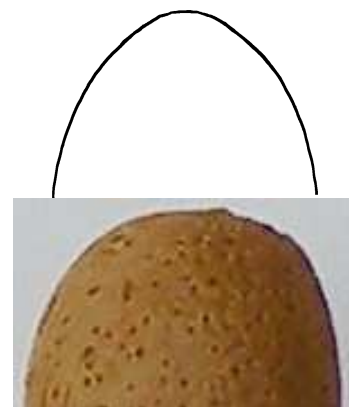
Ad. 35: Stone: shape of apex



1
acute



2
obtuse

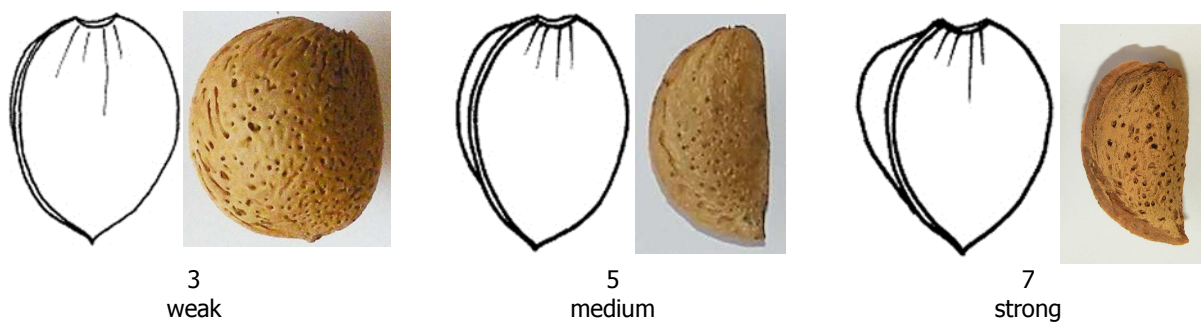


3
rounded

Ad. 37: Stone: resistance to cracking

The characteristic is observed as the ease with which the stone can be broken by hand.

Ad. 38: Stone: keel development



Ad. 40: Kernel: intensity of brown colour

The colour of the kernel should be observed on freshly opened stones.

Ad. 43: Time of beginning of flowering

The beginning of flowering is when 10% of flowers have fully opened.

Ad. 44: Time of harvest

The time of harvest is when 50% of the fruits on the tree split.

LITERATURE

No specific literature.

ANNEX II

The Technical Questionnaire is available on the CPVO website under the following reference:
CPVO-TQ/056/1