

PROTOCOL FOR DISTINCTNESS, UNIFORMITY AND STABILITY TESTS

Actinidia Lindl.

KIWIFRUIT

UPOV Code: ACTIN

Adopted on 28/11/2012

Entered into force on 01/01/2012

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/098/7 dated 28/03/2012 for the conduct of tests for Distinctness, Uniformity and Stability. This protocol applies to all varieties of ***Actinidia Lindl.***

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

The final dates for request for technical examination and sending of Technical Questionnaire by the CPVO as well as submission date, quantity and quality of plant material by the applicant can be found in 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 Directive 2000/29/EC and its 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 office's 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 co-ordinate the work with other Offices involved in DUS testing of kiwifruit. 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 I. 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 used for grouping could be the following:

For male varieties

- a) Time of beginning of flowering (characteristic 75)

For female and hermaphrodite varieties (fruiting varieties)

- a) Fruit: weight (characteristic 46)
- b) Fruit: shape (characteristic 50)
- c) Fruit: stylar end (characteristic 52)
- d) Fruit: hairiness of skin (characteristic 59)
- e) Fruit: colour of outer pericarp (characteristic 65)
- f) Fruit: colour of locules (characteristic 66)
- g) Time of maturity for harvest (characteristic 76)

5. Trial designs and growing conditions

For female and hermaphrodite varieties the minimum duration of tests will normally include at least two satisfactory crops of fruit. For male varieties one year of observations might be sufficient provided there is a good blossoming. 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 two parts from each of 5 plants.

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. 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 variety description should be supplemented by:

- (i) A colour photograph of transversally sliced fruit
- (ii) A colour photograph of an industry standard tray full of fruit.

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 **01/01/2012**. Any ongoing DUS examination of candidate varieties with observations started before the aforesaid date will not be affected by the approval of the new TP. Technical examinations of candidate varieties are carried out according to the TP in force at the time the first observations are made on characteristics in an independent growing cycle.

In cases where the CPVO requests to take-over a DUS report for which the technical examination has either been finalized or which is in the process of being carried out at the moment of the 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

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Legend:

- (*) UPOV asterisked characteristics
- (+) See Explanations on the Table of characteristics
- (a)-(h) See Explanations on the Table of Characteristics
- G Grouping characteristics

Example Varieties:

(A) The characteristic only applies to varieties in Group A

(B) The characteristic only applies to varieties in Group B

Where appropriate, example varieties are provided to clarify the states of expression of each characteristic. The varieties have particular relevance to *Actinidia arguta*, *A. chinensis*, *A. deliciosa*, *A. melanandra*, *A. kolomikta*, *A. eriantha*, *A. rufa*, *A. polygama* and interspecific hybrids of these species.

Example varieties are separated into two groups:

Group A: all varieties belonging to *A. deliciosa*, *A. chinensis*, *A. kolomikta*, *A. eriantha*, *A. rufa*

Group B: all varieties belonging to *A. arguta*, *A. polygama*, *A. melanandra*, *A. macrosperma*

Types of expression of characteristics:

- QL Qualitative characteristic
- QN Quantitative characteristic
- PQ Pseudo-qualitative characteristic

Type of observation of characteristics:

- 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	Plant: sex					
			(*)	female	Hayward (A), Shinzan (B)	1		
			(+)	male	a-Awaji (B), Matua (A)	2		
QL	QL		hermaphrodite	Jenny (A)	3			
2.	2.	VG	Plant: self fruit setting					
			(+)	absent		1		
			QL	present		9		
3.	3.	VG	Plant: vigour					
			(+)	weak		3		
			QN	medium	Hayward (A)	5		
				strong	Bruce (A)	7		
			very strong		9			
4.	4.	VG	Young shoot: density of hairs					
			(*)	(a)	very sparse		1	
			QN	QN	sparse	a-Awaji (B), Kuimi (A)	3	
					medium	Hayward (A), Shinzan (B)	5	
			dense	King (A), Mitsukou (B)	7			
5.	5.	VG	Young shoot: anthocyanin coloration of growing tip					
			(*)	(a)	absent or very weak	Hort16A (A), Mitsukou (B)	1	
			QN	QN	(e)	weak	King (A), Shinzan (B)	3
						medium	Kousui (B), Tomua (A)	5
			strong	Houkou (B), Koryoku (A)	7			
6.	6.	VG	Stem: thickness					
			(*)	(b)	thin	a-Gassan (B), Sparkler(A)	1	
			QN	QN	medium	a-Awaji (B), Hayward (A)	2	
			thick	Bruno (A), Shinzan (B)	3			

CPVO N°	UPOV N°	Stage, method	Characteristics	Examples	Note
7.	7.	VG (*) (b)	Stem: colour of shoot on sunny side		
			green white		1
			grey brown	King(A), Mitsukou (B)	2
			yellow brown	Sparkler(A)	3
			light brown	a-Hirano (B), Hort16A(A)	4
			red brown	Ranger(A)	5
			purple brown	Bruno(A)	6
PQ	PQ		dark brown	Kousui (B)	7
8.	8.	VG (b)	Stem: texture of bark		
			smooth	Shinzan (B), Sparkler(A)	1
			moderately rough	a-Gassan (B), Meteor(A)	2
QN	QN		very rough	a-Awaji (B), Hayward(A)	3
9.	9.	VG (b) (1)	Stem: density of hairs		
			absent or sparse	Meteor (A)	1
			medium	Hayward (A)	2
QN	QN		dense		3
10.	10.	VG (*) (b)	Stem: size of lenticels		
			very small	Kaimai (A)	1
			small	Monty (A), Shinzan (B)	2
			medium	Hayward (A), r-Gassan (B)	3
QN	QN		large	Hort16A (A)	4
11.	11.	VG (*) (b)	Stem: number of lenticels		
			few	Meteor (A), Shigemidori (B)	3
			medium	Hayward (A), Shinzan (B)	5
QN	QN		many	Bruno (A), Mitsukou (B)	7

CPVO N°	UPOV N°	Stage, method	Characteristics	Examples	Note			
12.	12.	VG	Stem: prominence of bud support					
			(*)	(b)	very weak	Sparkler(A)	1	
			(+)		weak	Hayward(A)	2	
			QN	QN	medium	a-Awaji (B), King (A)	3	
					strong	Kaimai(A), Shinzan (B)	4	
		very strong	Kuimi (A)	5				
13.	13. (*)	VG	Stem: presence of bud cover					
			(+)	(+)	(b)	absent	Hort16A (A), Kousui (B)	1
			QL	QL		present	Hayward (A), Mitsukou (B)	9
14.	14.	VG	Stem: size of hole in bud cover					
			(*)	(b)	small	Abbott (A), Mitsukou (B)	1	
			(+)	(+)	medium	Hayward (A), r-Awaji (B)	2	
QN	QN		large	Elmwood (A), r-Nagano (B)	3			
15.	15.	VG	Stem: leaf scar					
			(+)	(+)	(b)	flat	Meteor (A), Shinzan (B)	1
			QN	QN	moderately depressed	Hort16A (A), r-Nagano (B)	2	
strongly depressed	Kousui (B), Monty (A)	3						
16.	16.	VG	Stem: pith					
			(*)		absent		1	
			(+)	(+)	lamellate	Hayward (A)	2	
PQ	PQ		solid		3			
17.	17.	VG	Leaf blade: shape					
			(*)	(c)	lanceolate	Kaimai (A)	1	
			(+)	(+)	(d)	ovate	Hayward (A)	2
PQ	PQ		obovate	Bruno (A)	3			
18.	18.	VG/MS	Leaf blade: ratio length/width					
			(*)	(c)	moderately elongated	Kaimai (A)	3	
			(+)	(+)	(d)	intermediate	Hayward (A)	5
QN	QN		moderately compressed	Matua (A)	7			

CPVO N°	UPOV N°	Stage, method	Characteristics	Examples	Note	
19.	19.	VG	Leaf blade: shape of apex			
		(*)	(c)	caudate	Hortgem Tahi (B)	1
		(+)	(d)	acuminate	Kaimai (A), Yukimusume (B)	2
		PQ	PQ	acute	Hayward (A)	3
				emarginated with cuspidate		4
				rounded	Satoizumi (B)	5
				retuse	Shinzan (B)	6
			emarginated	Kuimi (A)	7	
20.	20.	VG	Leaf blade: basal lobes			
		(*)	(c)	none		1
		(+)	(d)	far apart	Kaimai (A)	2
		QN	QN	slightly apart	Matua (A)	3
				touching each other	Hort16A (A)	4
			(1)	slightly overlapping	Hayward (A)	5
		strongly overlapping		6		
21.	21.	VG	Leaf blade: number of ciliate serrations			
		(+)	(c)	few	a-Shouwa (B)	3
		QN	QN	medium	a-Gassan (B)	5
			(2)	many	Mitsukou (B)	7
22.	22.	VG	Leaf blade: density of hairs on <u>upper</u> side			
		QN	QN	(c) absent or very sparse	Hort16A (A)	1
			(d)	sparse	Kaimai (A)	3
			(1)	medium	Bruno (A)	5
				dense	Meteor (A)	7
23.	23.	VG	Leaf blade: density of hairs on <u>lower</u> side			
		QN	QN	(c) absent or very sparse	Hortgem Tahi (B), Kousui (B)	1
			(d)	sparse	a-Gassan (B), Kuimi (A)	3
				medium	a-Shouwa (B), Hayward(A)	5
				dense	Ranger (A), Shinzan (B)	7

CPVO N°	UPOV N°	Stage, method	Characteristics	Examples	Note				
24.	24.	VG	Leaf blade: intensity of green colour of <u>upper</u> side						
			(*)	(c)	light	a- Gassan (B)	3		
			QN	QN	(d)	medium	Hayward (A), Satoizumi (B)	5	
dark	Bruno (A), Shinzan (B)	7							
25.	25.	VG	Leaf blade: colour of <u>lower</u> side						
			(*)	(c)	whitish	Shinzan (B)	1		
			PQ	PQ	(d)	light green	a-Awaji (B), Hortgem Tahi (B)	2	
						medium green	Bruno (A)	3	
						yellow green	Hayward (A)	4	
yellow brown		5							
26.	26.	VG	Leaf blade: variegation						
			QL	QL	(c)	absent		1	
						(d)	present		9
27.	27.	VG	Leaf blade: colour of variegation if present						
			PQ	PQ	(c)	white only		1	
						(d)	white and yellow		2
						yellow only		3	
28.	28.	VG	Leaf: length of petiole relative to blade						
			(*)	(c)	very small	Kaimai (A)	1		
			QN	QN	(d)	small	Gracie (A)	3	
						medium	Kousui (B), Meteor (A)	5	
						large	Hayward (A), Satoizumi (B)	7	
29.	29.	VG	Petiole: anthocyanin coloration of <u>upper</u> side						
			QN	QN	(c)	absent or very weak	Kaimai (A), Mitsukou (B)	1	
						(d)	weak	Houkou (B), Sparkler (A)	3
						(e)	medium	Hayward (A), Shinzan (B)	5
						strong	a-Hirano (B), Tomua (A)	7	

CPVO N°	UPOV N°	Stage, method	Characteristics	Examples	Note
30.	30.	VG	Inflorescence: type		
(+)	(+)		solitary	Jinkui	1
QL	QL		dichasium	Jinyan	2
			pleiochasium	Moshan No.4	3
31.	31.	VG/MG	Inflorescence: number of flowers		
(+)	(+)		very few	Hayward (A), Hortgem Rua (B)	1
QN	QN		few	Matua (A)	2
			medium	Hort22D (A)	3
			many		4
32.	32.	VG	Flower bud: position of first spike		
(+)	(+)		low		1
QN	QN	(2)	medium	a-Shouwa (B)	2
			high	a-Gassan (B)	3
33.	33.	VG	Flower: number of sepals		
QN	QN	(f)	few	Skelton (A)	1
			medium	Hortgem Tahī (B)	2
			many	Bruce (A)	3
34.	34.	VG	Flower: main colour of sepals		
	(*)	(f)	white	Yukimusume (B)	1
(+)	(+)		green	Hort16A (A), Mitsukou (B)	2
PQ	PQ		brown	Shinzan (B), Tomua(A)	3
			reddish brown	a-Awaji (B), Hortgem Tahī (B)	4
35.	35.	VG	Flower: density of sepal hairs		
QN	QN	(f)	absent or sparse		1
		(1)	medium		2
			dense	Bruce (A)	3

CPVO N°	UPOV N°	Stage, method	Characteristics	Examples	Note
36.	36.	MG/MS	Flower: diameter		
	(*)	(f)	small	a-Gassan (B), Sparkler (A)	3
QN	QN		medium	Matua (A), Satoizumi (B)	5
			large	Hort51-1785 (A), Shinzan (B)	7
			very large	Hayward (A)	9
37.	37.	VG	Flower: arrangement of petals		
	(*)	(f)	free	Abbott (A), a-Shouwa (B)	1
(+)	(+)		touching	Matua (A), Satoizumi (B)	2
QN	QN		overlapping	Hayward(A) Shinzan (B)	3
38.	38.	VG	Flower: shape in profile		
PQ	PQ	(f)	concave	Hayward (A)	1
			flat	Bruno (A)	2
			convex	Tamara (A)	3
39.	39.	VG	Flower: number of styles		
QN	QN	(f)	few	Yamagatamusume (B)	1
			medium	Hort16A (A), Satoizumi (B)	2
			many	Hayward (A), Shinzan (B)	3
40.	40.	VG	Flower: attitude of styles		
	(*)	(f)	erect		1
(+)	(+)		semi-erect	Houkou (B)	2
PQ	PQ		horizontal	Bruno (A), Shinzan (B)	3
			irregular	Hayward (A)	4

CPVO N°	UPOV N°	Stage, method	Characteristics	Examples	Note
41.	41.	VG	Petal: main colour on adaxial side		
(+)	(+)		white	Hayward(A), Shinzan (B)	1
PQ	PQ		greenish white	Hortgem Tahí (B), Satoizumi (B)	2
			yellowish white	Bruce (A), Mitsukou (B)	3
			yellowish green		4
			yellow		5
			light pink		6
			red pink		7
			red		8
42.	42.	VG	Petal: shading of main colour		
(+)	(+)	(f)	lighter towards base		1
QN	QN		even	Hort16A(A)	2
			lighter towards apex		3
43.	43.	VG	Petal: second colour on adaxial side		
(+)	(+)	(f)	none		1
PQ	PQ		white		2
			green	Hayward (A)	3
			light pink		4
			dark pink	Meteor (A)	5
44.	44.	VG	Petal: distribution of second colour		
(+)	(+)	(f)	marginal only		1
PQ	PQ		irregular spotted	Meteor (A)	2
			basal spot only	Hayward (A)	3
45.	45.	VG	Anther: colour		
PQ	PQ	(f)	yellow	r-Nagano (B)	1
			yellow orange	Bruce (A)	2
			grey		3
			dark purple	Mitsukou (B)	4
			black	a-Shouwa (B)	5

CPVO N°	UPOV N°	Stage, method	Characteristics	Examples	Note		
46.	46.	MG	Fruit: weight				
			(*)	(g)	very low		1
			(+)	(+)	low	Huaguang2 (A)	3
			QN	QN	medium	Hort16 (A), Hortgem Tahi (B), Tomua (A)	5
					high	Hayward (A), Jin Feng (A)	7
G			very high	Jade Moon (A)	9		
47.	47.	MG/MS	Fruit: length				
			(*)	(g)	short	Kuimi (A) Hortgem Tahi (B)	3
			(+)	(+)	medium	Hayward (A)	5
			QN	QN	long	Bruno (A) Hortgem Toru (B)	7
48.	48.	MG/MS	Fruit: width				
			(*)	(g)	narrow	Bruno (A)	3
			(+)	(+)	medium	Hayward (A)	5
			QN	QN	broad	Kuimi (A)	7
49.	49.	MG	Fruit: ratio length/width				
			(*)	(g)	weakly elongated	Bruno (A)	3
			(+)	(+)	medium	Hayward (A)	5
			QN	QN	weakly compressed	Kuimi (A)	7
50.	50.	VG	Fruit: shape				
			(*)	(g)	ovate	Hort16A (A), Jecy Gold (A), Yamagatamusume (B)	1
			(+)	(+)	oblong	Hortgem Toru (B), Wilkins Super (A)	2
			PQ	PQ	elliptic	Hayward (A), Mitsukou (B)	3
					circular	Hort51-1785 (A)	4
					oblate	Kuimi (A), Shinzan (B)	5
			G		obovate	Monty (A)	6

CPVO N°	UPOV N°	Stage, method	Characteristics	Examples	Note
51.	51.	VG	Fruit: shape in cross section (at median)		
	(*)	(g)	circular	Bruno (A), Mitsukou (B)	1
	(+)	(+)	oblate	Hortgem Tahi (B), Kousui (B), Wilkins Super(A)	2
PQ	PQ		transverse elliptic	Hayward (A)	3
52.	52.	VG	Fruit: stylar end		
	(*)	(g)	strongly depressed		1
	(+)	(+)	weakly depressed	Jade Moon (A)	2
	PQ	PQ	flat	Hayward (A), Satoizumi (B)	3
			rounded	Kousui (B), Tomua (A)	4
			weakly blunt protruding	Skelton (A)	5
			strongly blunt protruding	Hort16A (A)	6
G			pointed protrusion	Hortgem Toru (B)	7
53.	53.	VG	Fruit: degree of pointed protusion		
	(+)	(+)	(g) weak		1
	QN	QN	medium		2
		(2)	strong		3
54.	54.	VG	Fruit: presence of calyx ring		
	(+)	(+)	(g) absent or weak	Bruno (A)	1
	QN	QN	(1) medium	Hayward (A)	2
			strong	Hort16A (A), Qinmei (A)	3
55.	55.	VG	Fruit: shape of shoulder at stalk end		
	(*)	(g)	truncate	Hortgem Tahi (B), Mitsukou (B)	1
	(+)	(+)	weakly sloping	Hayward (A), Kousui (B)	2
PQ	PQ		strongly sloping	Skelton (A)	3
56.	56.	MG/VG /MS	Fruit: length of stalk		
	(*)	(g)	short	Hortgem Tahi (B), Houmitu (A)	3
	QN	QN	medium	Sanuki Gold (A), Shinzan (B)	5
			long	Hayward (A)	7

CPVO N°	UPOV N°	Stage, method	Characteristics	Examples	Note			
57.	57.	MG/VG /MS	Fruit: length of stalk relative to length of fruit					
			(*)	(g)	very short	Wuzhi3 (A)	1	
			(+)	(+)	short	Bruno (A), Kousui (B)	3	
			QN	QN	medium	Allison (A), Shinzan (B)	5	
					long	Hayward (A)	7	
			very long	Jade Moon (A)	9			
58.	58.	VG	Fruit: conspicuousness of lenticels on skin					
			QN	QN	(g)	weak	Hort16A (A), Mitsukou (B)	1
						medium	Hayward (A)	2
						strong	Kousui (B), Top Star Vantini (A)	3
59.	59.	VG	Fruit: hairiness of skin					
			(*)	(g)	absent	Shinzan (B), Shouwa (B)	1	
			QL	QL	present	Hayward (A)	9	
60.	60.	VG	Fruit: density of hairs					
			(*)	(g)	very sparse	Top Star Vantini(A)	1	
			(+)	(+)	(1)	sparse	Hort16A (A)	3
			QN	QN		medium	Hayward (A)	5
						dense	Bruno (A)	7
61.	61.	VG	Fruit: colour of hairs					
			PQ	PQ	(g)	white		1
					(1)	yellow		2
						yellow brown	Hort16A (A)	3
						reddish brown		4
						medium brown	Hayward (A)	5
						dark brown	Bruno (A)	6

CPVO N°	UPOV N°	Stage, method	Characteristics	Examples	Note			
62.	62.	VG	Fruit: adherence of hairs to skin					
			(*)	(g)	very weak	Tomua (A)	1	
			(+)	(+)	weak	Hort16A (A)	3	
			QN	QN	medium	Abott (A)	5	
			strong	Hayward (A)	7			
63.	63.	VG	Fruit: colour of skin					
			(*)	(h)	light green	Hortgem Rua (B)	1	
			(+)	(+)	medium green	Hortgem Tahī (B) ,Mitsukou (B)	2	
			PQ	PQ	reddish green		3	
					yellow		4	
					greenish brown	Hayward (A), Shinzan (B)	5	
					reddish brown		6	
					light brown	Hort16A (A)	7	
					medium brown	Sanuki Gold (A)	8	
					dark brown	Kousui (B), Tomua (A)	9	
		purple red		10				
64.	64.	VG	Fruit: adherence of skin to flesh					
			QN	QN	(h)	weak		1
					(2)	medium	Hortgem Tahī (B)	2
		strong	Hortgem Toru (B)	3				

CPVO N°	UPOV N°	Stage, method	Characteristics	Examples	Note
65.	65.	VG	Fruit: colour of outer pericarp		
	(*)	(h)	light green	Shinzan (B)	1
(+)	(+)		medium green	Hayward (A)	2
PQ	PQ		dark green	Hortgem Toru (B)	3
			greenish yellow	Hort22D (A), Satoizumi (B)	4
			medium yellow	Hort16A (A), Kousui (B)	5
			dark yellow	Hort51-1785 (A)	6
			yellowish orange		7
			orange		8
			red		9
G			red purple		10
66.	66.	VG	Fruit: colour of locules		
	(*)	(h)	light green	Shinzan (B)	1
(+)	(+)		medium green	Hayward (A), Hortgem Tahí (B)	2
PQ	PQ		dark green	Hortgem Toru (B)	3
			greenish yellow	Satoizumi (B)	4
			medium yellow	Hort16A (A), Kousui (B)	5
			dark yellow	Hort51-1785 (A)	6
			red	Hort22D (A), Hortgem Rua (B)	7
G			red purple		8
67.	67.	VG	Fruit: spread of reddish colour along locules (if present)		
(+)	(+)	(h)	very weak	Red Princess (A)	1
QN	QN		weak	Honghua (A)	2
			medium	Chuhong (A)	3
			strong		4
			very strong	Hort22D (A)	5

CPVO N°	UPOV N°	Stage, method	Characteristics	Examples	Note
68.	68.	VG	Fruit: intensity of reddish colour in locules		
QN	QN	(h)	light	Red Princess (A)	3
			medium		5
			dark	Hort22D (A)	7
69.	69.	VG/MG	Fruit: width of core relative to fruit		
	(*)		small	Hort16A (A)	3
(+)	(+)		small to medium		4
QN	QN	(h)	medium	Bruno (A)	5
			medium to large	Tomua (A)	6
			large	Hayward (A)	7
70.	70.	VG	Fruit: general shape of core in cross section		
	(*)	(h)	circular	Jintao (A), Yukimusume (B)	1
(+)	(+)		oblate	Hort22D (A), Hortgem Tahi (B), Shinzan (B)	2
PQ	PQ		transverse elliptic	Hort16A (A), Mitsukou (B)	3
71.	71.	VG	Fruit: colour of core		
	(*)	(h)	white	Hort22D (A)	1
PQ	PQ		greenish white	Hayward (A), Hortgem Tahi (B)	2
			yellow white	Hort16A (A), Shinzan (B)	3
			red purple		5
72.	72.	VG/MG	Fruit: sweetness		
(+)	(+)	(h)	very low	Jade Moon (A)	1
QN	QN		low	Hayward (A), Satoizumi (B)	3
			medium	Tomua (A), Yukimusume (B)	5
			high	Hort16A (A), Kousui (B)	7
73.	73.	VG/MG	Fruit: acidity		
(+)	(+)	(h)	low	Sanuki Gold (A), Satoizumi (B)	3
QN	QN		medium	Hayward (A), Yamagatamusume (B)	5
			high	a-Gassan (B), Bruno (A)	7

CPVO N°	UPOV N°	Stage, method	Characteristics	Examples	Note
74.	74.	VG/MG	Time of vegetative bud burst		
	(*)		very early	Hort16A (A), Hortgem Rua (B)	1
QN	QN		early	Tomua (A), Yukimusume (B)	3
			medium	Hayward (A), Shinzan (B)	5
			late	Mitsukou (B)	7
75.	75.	VG/MG	Time of beginning of flowering		
	(*)		early	Hort16A (A), Yukimusume (B)	3
(+)	(+)		medium	Abbott (A), Kousui (B)	5
QN	QN		late	Hayward (A)	7
G					
76	76	VG/MG	Time of maturity for harvest		
	(*)	(g)	very early	Hortgem Rua (B)	1
(+)	(+)		early	Hort22D (A), Hortgem Tahī (B), Yamagatamusume (B)	3
QN	QN		medium	Kousui (B), Tomua (A)	5
G			late	Hayward (A), Yukimusume (B)	7

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:

- (1) Applies to Example variety Group A type varieties only
- (2) Applies to Example variety Group B type varieties only
 - a) All observations on the young shoot should be made during active vegetative growth. Observation of hairs should be made on internodes from the middle third of growing shoots.
 - b) All observations on the stem (including observations on the buds and bud support) should be made in the middle third of the replacement stem after leaf fall.
 - c) The shape, size and hairiness of leaves can vary greatly according to the type and vigor of the shoot on which they are borne. Unless specified, the shoots should be replacement canes, i.e., those that will be tied down and retained for the following season's flowering.
 - d) All observations on the leaf should be made near the middle of the current season's growth on sufficiently mature, but not old leaves. The most basal leaves of a shoot should be excluded since they do not usually attain full size or typical shape.
 - e) All observations on the presence or absence of anthocyanin coloration in vegetative organs refer to the general appearance of the organ, irrespective of whether red pigments are present in hairs or in the underlying surface.
 - f) All observations on the flower should be made on recently fully-opened terminal (king) flowers.
 - g) Observations on fruit characteristics should be made at harvest maturity.
 - h) Observations on fruit characteristics should be made when ripe for eating.

Explanations for individual characteristics

Ad. 1: Plant: sex

A hermaphrodite variety has flowers with stigmas and anthers with pollen.

Ad. 2: Plant: self fruit setting

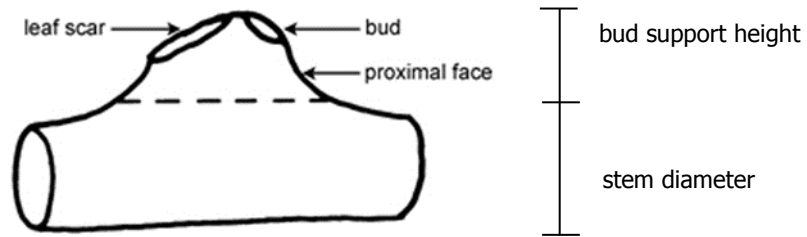
A self fruiting variety will set viable fruit without the presence of polliniser male plants or if flowers are bagged to prevent cross pollination.

Ad. 3: Plant: vigour

Plant vigour is determined by the evaluation of the overall abundance of vegetative growth.

Ad. 12: Stem: prominence of bud support

Ad. 15: Stem: leaf scar



The prominence of the bud support is determined by the bud support height/stem diameter contrast.

Ad. 13: Stem: presence of bud cover



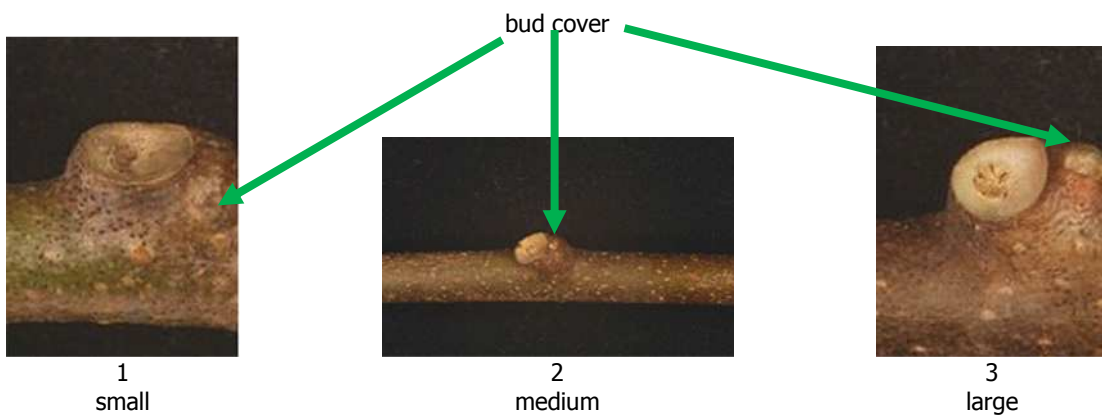
1
absent



9
present

The absence or presence of the bud cover is indicated by the visibility of the bud. A variety with no bud cover has a strongly protruding bud which is clearly visible. A variety with a bud cover has an almost invisible bud that appears sunk into the stem.

Ad. 14: Stem: size of hole in bud cover



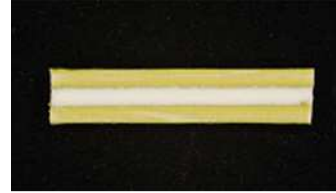
Ad. 16: Stem: pith

The stem is cut in longitudinal section and the inner part is observed from above.

1 absent the inner part is empty or hollow





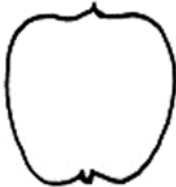
2
lamellate






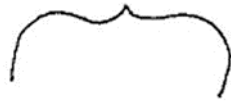



3
solid

Ad. 17: Leaf blade: shape

Ad. 18: Leaf blade: ratio length/width

		← broadest part →		
		(below middle)	at middle	(above middle)
compressed • ← width (ratio length/width) → • elongated	 1 lanceolate			
	 2 ovate			
				 3 obovate

Ad. 19: Leaf blade: shape of apex

pointed	 1 caudate	 2 acuminate	 3 acute	 4 emarginate with cuspidate
rounded	 5 rounded			
notched	 6 retuse	 7 emarginate		

Ad. 20: Leaf blade: basal lobes



1
none



2
far apart



3
slightly apart



4
touching each other

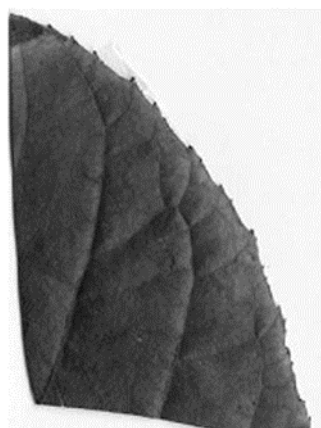


5
slightly overlapping

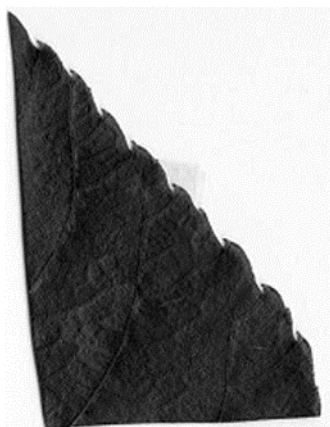


6
strongly overlapping

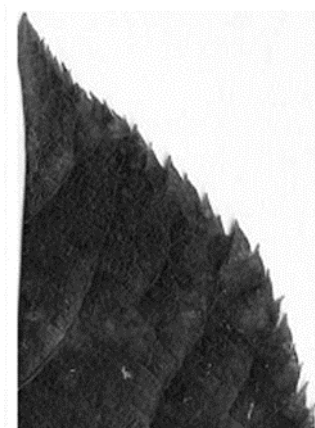
Ad. 21: Leaf blade: number of ciliate serrations



3
few

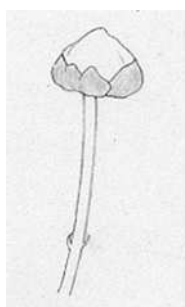


5
medium



7
many

Ad. 30: Inflorescence: type



1
solitary



2
dichasium



3
pleiochasium



Ad. 31: Inflorescence: number of flowers

Flowers occur on the first 1-6 nodes on a current season's shoot. The observation should be made immediately before flower opening, when at least 2 nodes have developed. The number of flowers present at each node is recorded. It is recommended that at least two shoots are observed per plant.

Ad. 32: Flower bud: position of first spike

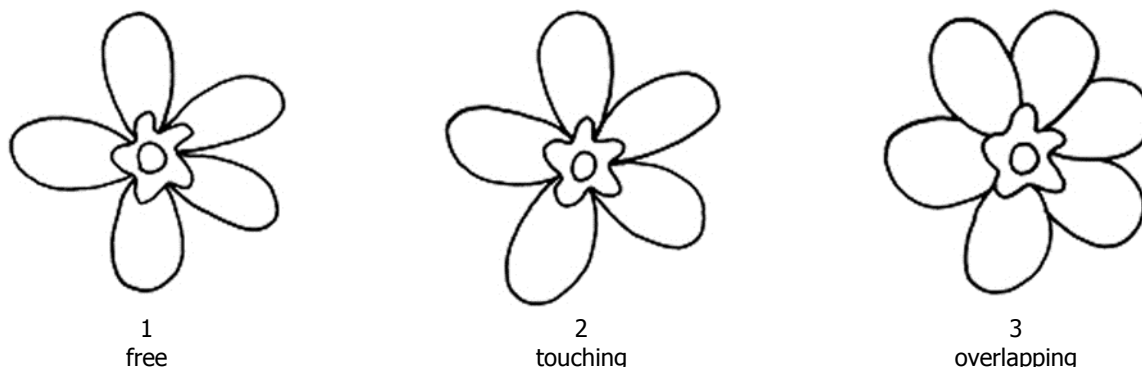
The position of the first spike is determined by node order, of which the first spike is set, from the base. Some varieties set the first spike at the lowest node from the base.

Ad. 34: Flower: main colour of sepals

The sepal may have more than one colour. The main colour is the colour with the largest surface area on the organ.

Ad. 37: Flower: arrangement of petals

Flowers are viewed from beneath as shown in the diagrams.



Ad. 40: Flower: attitude of styles

State 4 irregular: The attitude of the styles is a mixture of erect, semi erect and horizontal in any combination of two of three different attitudes. The general impression of the flowers is one of no consistency of style attitude or a single predominant style attitude.

Ad. 41: Petal: main colour on adaxial side

Ad. 42: Petal: shading of main colour

The main colour is the colour with the largest surface area on the petal. The main colour may be shaded, being darker or lighter from base to apex. This is also referred to as a different intensity of colour or colour gradient on an organ.

The adaxial side is facing the axis of the flower, the upper side. Note that the upper side may be facing downwards when observed on the plant.

Ad. 43: Petal: second colour on adaxial side

Ad. 44: Petal: distribution of second colour

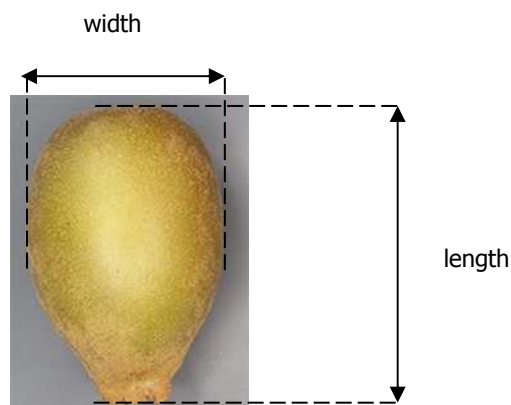
The secondary colour is identified as the colour with the second largest surface area on the organ. The second colour occurs as a single basal spot, irregular spotting over the entire petal or solid coloration on or near the margin.

Ad. 46: Fruit: weight

Fruit weight should be determined by a sample size of 25 harvested fruits, 5 each from 5 plants.

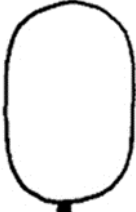

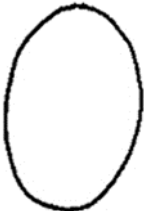

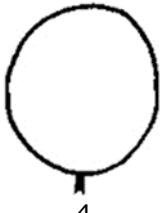
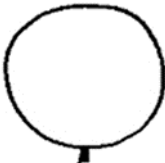
Ad 47: Fruit: length

Ad 48: Fruit: width

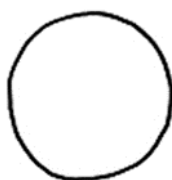


Ad. 49: Fruit: ratio length/width

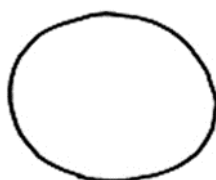
Ad. 50: Fruit: shape

		← broadest part →		
		below the middle	at middle	above middle
length/width ratio →	elongated		 2 oblong	
		 1 ovate	 3 elliptic	 6 obovate
← length/width ratio →			 4 circular	
	compressed		 5 oblate	

Ad. 51: Fruit: shape in cross section (at median)



1
circular

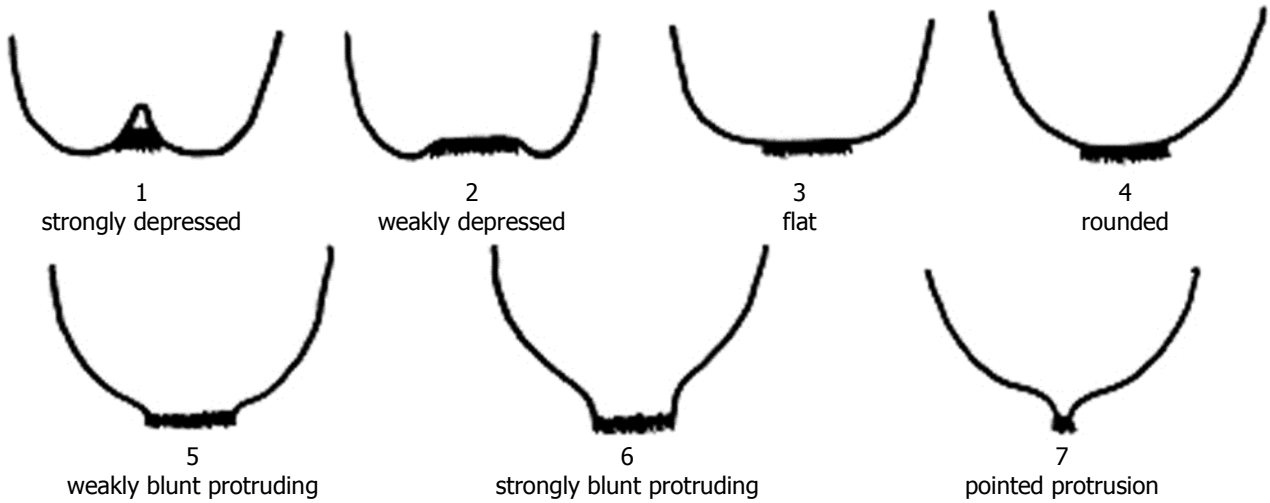


2
oblate

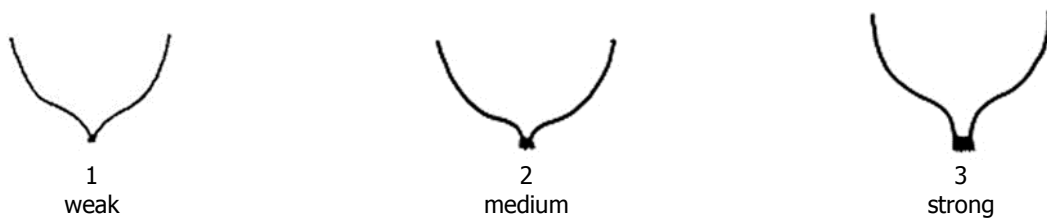


3
transverse elliptic

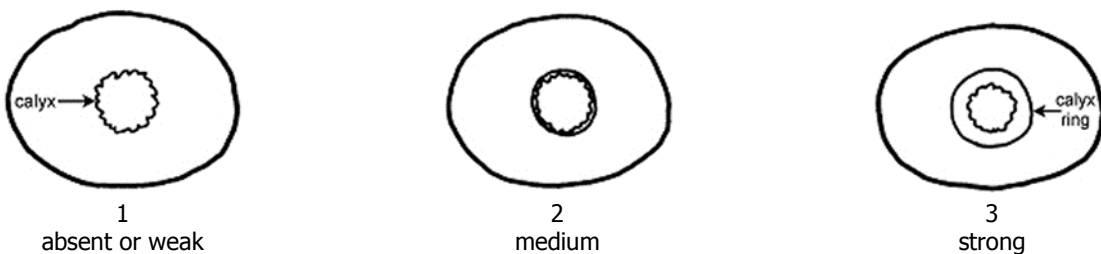
Ad. 52: Fruit: stylar end



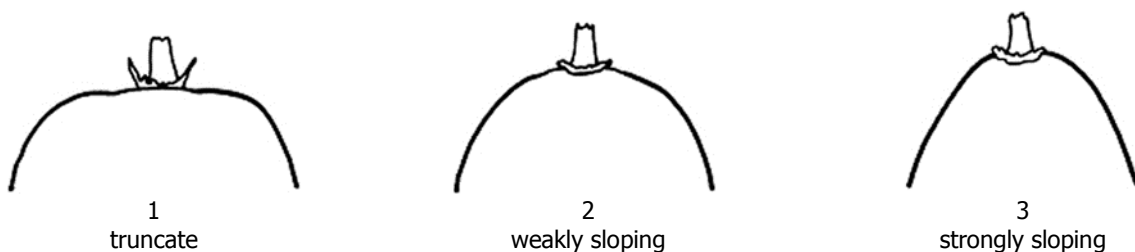
Ad. 53: Fruit: degree of pointed protrusion



Ad. 54: Fruit: presence of calyx ring



Ad. 55: Fruit: shape of shoulder at stalk end



Ad. 57: Fruit: length of stalk relative to length of fruit

The relativity is determined by the size of the difference between the length of the stalk and the length of the fruit.

Short means moderately shorter stalk to length of fruit,
medium means similar stalk length to fruit length,
long means moderately longer stalk to length of fruit.

Ad. 58: Fruit: conspicuousness of lenticels on skin

The conspicuousness of lenticels is determined by the size and number on the skin.

Ad. 60: Fruit: density of hairs

The density is determined by the combination of the number of hairs and length of individual hairs.

Ad. 62: Fruit: adherence of hairs to skin

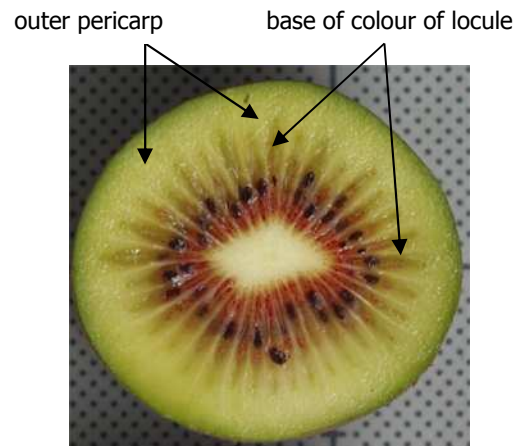
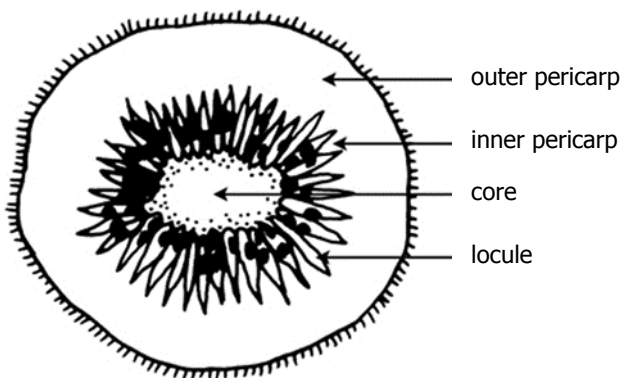
Observation is made by rubbing a finger across the fruit surface and determining the ease or difficulty of hair removal.

Ad. 63 Fruit: colour of skin

The colour of skin is assessed at harvest after removal of as much hair as practical. The colour of the skin does not include coloration from hair.

Ad. 65: Fruit: colour of outer pericarp

Ad. 66: Fruit: colour of locules



Ad. 67: Fruit: spread of reddish colour along locules (if present)



1
very weak



2
weak



3
medium

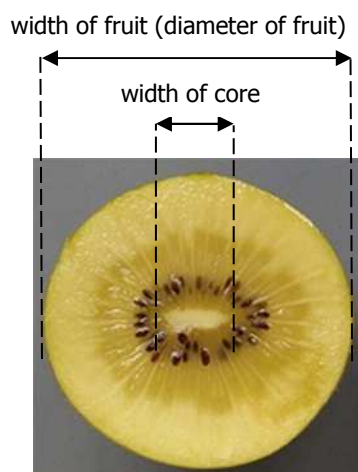


4
strong

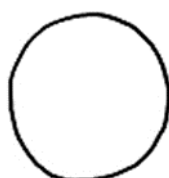


5
very strong

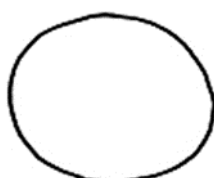
Ad. 69: Fruit: width of core relative to fruit



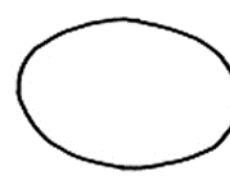
Ad. 70: Fruit: general shape of core in cross section



1
circular



2
oblate



3
transverse elliptic

Ad. 72: Fruit: sweetness

The total soluble solids content is measured by refractometer.

Ad. 73: Fruit: acidity

Acidity is determined by titration of titrateable acids.

Ad. 74: Time of vegetative bud burst

When 10% of buds are showing green shoots.

Ad. 75: Time of beginning of flowering

When 10% of flower buds have fully opened.

Ad. 76: Time of maturity for harvest

It is recommended that harvest occur when the total soluble solids content is at the level determined by national or regional harvest requirements. The total soluble solids can be measured by Brix test.

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ANNEX II

The Technical Questionnaire is available on the CPVO website under the following reference:
CPVO-TQ/098/2