E

TG/98/7(proj.2)
ORIGINAL: English
DATE: 2010-08-25

UPOV

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

DRAFT

ACTINIDIA *

UPOV Code: ACTIN

Actinidia Lindl.

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by experts from New Zealand

to be considered by

the Technical Working Party for Fruit Crops
at its forty-first session, to be held in Cuernavaca, Morelos State, Mexico,
from September 27 to October, 2010

Alternative Names:*

Botanical name	*English*	*French*	*German*	*Spanish*
Actinidia Lindl.	Kiwifruit			

The purpose of these guidelines ("Test Guidelines") is to elaborate the principles contained in the General Introduction (document TG/1/3), and its associated TGP documents, into detailed practical guidance for the harmonized examination of distinctness, uniformity and stability (DUS) and, in particular, to identify appropriate characteristics for the examination of DUS and production of harmonized variety descriptions.

ASSOCIATED DOCUMENTS

These Test Guidelines should be read in conjunction with the General Introduction and its associated TGP documents.

* These names were correct at the time of the introduction of these Test Guidelines but may be revised or updated. [Readers are advised to consult the UPOV Code, which can be found on the UPOV Website (www.upov.int), for the latest information.]

TABLE OF CONTENTS PAGE

1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Actinidia* Lindl. with particular relevance to *A. arguta, A. chinensis, A. deliciosa, A. melanandra, A. kolomikta, A. eriantha, A. rufa, A. polygama* and interspecific hybrids of these species.

2. Material Required

2.1 The competent authorities decide on the quantity and quality of the plant material required for testing the variety and when and where it is to be delivered. Applicants submitting material from a State other than that in which the testing takes place must ensure that all customs formalities and phytosanitary requirements are complied with.

2.2 The material is to be supplied in the form of plants on their own roots or plants on a clonal rootstock. The competent authorities to select the most appropriate rootstock. For female varieties, the competent authorities should ensure that an appropriate male variety is available for adequate pollination.

2.3 The minimum quantity of plant material, to be supplied by the applicant, should be:

5 plants on their own roots or,
5 plants on a clonal rootstock

2.4 The plant material supplied should be visibly healthy, not lacking in vigor, nor affected by any important pest or disease.

2.5 The plant material should not have undergone any treatment which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If it has been treated, full details of the treatment must be given.

3. Method of Examination

3.1 Number of Growing Cycles

3.1.1 The minimum duration of tests should normally be two independent growing cycles. In particular, it is essential that the plants produce a satisfactory crop of fruit in each of the two growing cycles.

3.1.2 The growing cycle is considered to be the duration of a single growing season, beginning with bud burst (flowering and/or vegetative), flowering and fruit harvest and concluding when the following dormant period ends with the swelling of new season buds.

3.2 Testing Place

Tests are normally conducted at one place. In the case of tests conducted at more than one place, guidance is provided in TGP/9 “Examining Distinctness”.

3.3 Conditions for Conducting the Examination

3.3.1 The tests should be carried out under conditions ensuring satisfactory growth for the expression of the relevant characteristics of the variety and for the conduct of the examination.

3.4 Test Design

3.4.1 Each test should be designed to result in a total of at least 5 plants

3.4.2 The design of the tests should be such that plants or parts of plants may be removed for measurement or counting without prejudice to the observations which must be made up to the end of the growing cycle."

3.5 Additional Tests

Additional tests, for examining relevant characteristics, may be established.

4. Assessment of Distinctness, Uniformity and Stability

4.1 Distinctness

4.1.1 General Recommendations

It is of particular importance for users of these Test Guidelines to consult the General Introduction prior to making decisions regarding distinctness. However, the following points are provided for elaboration or emphasis in these Test Guidelines.

4.1.2 Consistent Differences

The differences observed between varieties may be so clear that more than one growing cycle is not necessary. In addition, in some circumstances, the influence of the environment is not such that more than a single growing cycle is required to provide assurance that the differences observed between varieties are sufficiently consistent. One means of ensuring that a difference in a characteristic, observed in a growing trial, is sufficiently consistent is to examine the characteristic in at least two independent growing cycles.

4.1.3 Clear Differences

Determining whether a difference between two varieties is clear depends on many factors, and should consider, in particular, the type of expression of the characteristic being examined, i.e. whether it is expressed in a qualitative, quantitative, or pseudo-qualitative manner. Therefore, it is important that users of these Test Guidelines are familiar with the recommendations contained in the General Introduction prior to making decisions regarding distinctness.

4.1.4 Number of Plants / Parts of Plants to be Examined

Unless otherwise indicated, all observations for the purposes of distinctness should be made on 5 plants or parts taken from each of 5 plants, disregarding any off-type plants.

5 plants on their own roots or,
5 plants on a clonal rootstock

4.1.5 Method of Observation

The recommended method of observing the characteristic for the purposes of distinctness is indicated by the following key in the second column of the Table of Characteristics (see document TGP/9 "Examining Distinctness", Section 4 "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

Type of observation: visual (V) or measurement (M)

"Visual" observation (V) is an observation made on the basis of the expert's judgment. For the purposes of this document, "visual" observation refers to the sensory observations of the experts and, therefore, also includes smell, taste and touch. Visual observation includes observations where the expert uses reference points (e.g. diagrams, example varieties, side-by-side comparison) or non-linear charts (e.g. color charts). Measurement (M) is an objective observation against a calibrated, linear scale e.g. using a ruler, weighing scales, colorimeter, dates, counts, etc.

Type of record: for a group of plants (G) or for single, individual plants (S)

For the purposes of distinctness, observations may be recorded as a single record for a group of plants or parts of plants (G), or may be recorded as records for a number of single, individual plants or parts of plants (S). In most cases, "G" provides a single record per variety and it is not possible or necessary to apply statistical methods in a plant-by-plant analysis for the assessment of distinctness."

In cases where more than one method of observing the characteristic is indicated in the Table of Characteristics (e.g. VG/MG), guidance on selecting an appropriate method is provided in document TGP/9, Section 4.2.

4.2 Uniformity

4.2.1 It is of particular importance for users of these Test Guidelines to consult the General Introduction prior to making decisions regarding uniformity. However, the following points are provided for elaboration or emphasis in these Test Guidelines:

4.2.2 For the assessment of uniformity, a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 5 plants, no off-types are allowed.

4.3 Stability

4.3.1 In practice, it is not usual to perform tests of stability that produce results as certain as those of the testing of distinctness and uniformity. However, experience has demonstrated that, for many types of variety, when a variety has been shown to be uniform, it can also be considered to be stable.

4.3.2 Where appropriate, or in cases of doubt, stability may be further examined by testing a new plant stock to ensure that it exhibits the same characteristics as those shown by the initial material supplied.

5. Grouping of Varieties and Organization of the Growing Trial

5.1 The selection of varieties of common knowledge to be grown in the trial with the candidate varieties and the way in which these varieties are divided into groups to facilitate the assessment of distinctness are aided by the use of grouping characteristics.

5.2 Grouping characteristics are those in which the documented states of expression, even where produced at different locations, can be used, either individually or in combination with other such characteristics: (a) to select varieties of common knowledge that can be excluded from the growing trial used for examination of distinctness; and (b) to organize the growing trial so that similar varieties are grouped together.

5.3 The following have been agreed as useful grouping characteristics:

For male varieties:

(a) Plant: ploidy (characteristic 3)
(b) Time of beginning of flowering (characteristic 79)

For female and hermaphrodite varieties (fruiting varieties):

(a) Plant: ploidy (characteristic 3)
(b) Fruit: weight (characteristic 49)
(c) Fruit: shape (characteristic 53)
(d) Fruit: shape of stylar end (characteristic 55)
(e) Fruit: hairiness of skin (characteristic 62)
(f) Fruit: color of outer pericarp (characteristic 69)
(g) Fruit: color of locules (characteristic 70)
(h) Time of maturity for harvest (characteristic 80)

5.4 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the General Introduction and document TGP/9 “Examining Distinctness”.

6. Introduction to the Table of Characteristics

6.1 Categories of Characteristics

6.1.1 Standard Test Guidelines Characteristics

Standard Test Guidelines characteristics are those which are approved by UPOV for examination of DUS and from which members of the Union can select those suitable for their particular circumstances.

6.1.2 Asterisked Characteristics

Asterisked characteristics (denoted by *) are those included in the Test Guidelines which are important for the international harmonization of variety descriptions and should always be examined for DUS and included in the variety description by all members of the Union, except when the state of expression of a preceding characteristic or regional environmental conditions render this inappropriate.

6.2 States of Expression and Corresponding Notes

6.2.1 States of expression are given for each characteristic to define the characteristic and to harmonize descriptions. Each state of expression is allocated a corresponding numerical note for ease of recording of data and for the production and exchange of the description.

6.2.2 In the case of qualitative and pseudo-qualitative characteristics (see Chapter 6.3), all relevant states of expression are presented in the characteristic. However, in the case of quantitative characteristics with 5 or more states, an abbreviated scale may be used to minimize the size of the Table of Characteristics. For example, in the case of a quantitative characteristic with 9 states, the presentation of states of expression in the Test Guidelines may be abbreviated as follows:

State	Note
small	3
medium	5
large	7

However, it should be noted that all of the following 9 states of expression exist to describe varieties and should be used as appropriate:

State	Note
very small	1
very small to small	2
small	3
small to medium	4
medium	5
medium to large	6
large	7
large to very large	8
very large	9

6.2.3 Further explanation of the presentation of states of expression and notes is provided in document TGP/7 “Development of Test Guidelines.

6.3 Types of Expression

An explanation of the types of expression of characteristics (qualitative, quantitative and pseudo-qualitative) is provided in the General Introduction.

6.4 Example Varieties

Where appropriate, example varieties are provided to clarify the states of expression of each characteristic.

Example varieties are separated into two groups:
A Female, hermaphrodite and male varieties belonging to *A. deliciosa, A. chinensis, A. kolomikta, A. eriantha, A. rufa*

B Female, hermaphrodite and male varieties belonging to *A. arguta, A. polygama, A. melanandra, A. macrosperma*

6.5 Legend

(*) Asterisked characteristic – see Chapter 6.1.2

QL: Qualitative characteristic – see Chapter 6.3
QN: Quantitative characteristic – see Chapter 6.3
PQ: Pseudo-qualitative characteristic – see Chapter 6.3

MG, MS, VG, VS – see Chapter 4.1.5

(a)-(h) See Explanations on the Table of Characteristics in Chapter 8.1

(1) The characteristic only applies to varieties in Group A
(2) The characteristic only applies to varieties in Group B

See Chapter 6.4 and explanations on the Table of Characteristics in 8.1

(+) See Explanations on the Table of Characteristics in Chapter 8.

7. Table of Characteristics/Tableau des caractères/Merkmalstabelle/Tabla de caracteres

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
1. **(*)** **(+)**	**VG**	**Plant: sex**					
QL		female				Hayward (A), Shinzan (B)	1
		male				Matua (A), a-Awaji (B)	2
		hermaphrodite				Jenny (A)	3
2.	**VG**	**Plant: self fruit setting (hermaphrodite varieties only)**					
QL		absent					1
		present					9
3. **(+)**	**MG**	**Plant: ploidy**					
QL		diploid				Hort16A (A), Kosui (B)	2
		tetraploid				Hortgem Tahi (B), Kaimutu (A)	4
		pentaploid				Shinzan (B)	5
		hexaploid				Hayward (A) Mitukou (B)	6
		octoploid					8
4. **(+)**	**VG**	**Plant: vigor**					
QN		weak				Hongyang’(A)	3
		medium				Hayward (A)	5
		strong				Bruce (A)	7
		very strong				Matua (A)	9

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
5. (*) (+)	**VG**	**Young shoot: density of hairs**					
QN	**(a)**	very sparse				Hongyang (A)	1
		sparse				a-Awaji (B), Kaimitu (A)	3
		medium				Hayward (A), Sinzan (B)	5
		dense				King (A), Mitukou (B)	7
6. (*)	**VG**	**Young shoot: anthocyanin coloration of growing tip**					
QN	**(a)**	absent or very weak				Hort16A (A), Mitukou (B)	1
	(e)	weak				King (A), Sinzn (B)	3
		medium				Tomua (A), Kosui (B)	5
		strong				Konyoku (A), Houkou (B)	7
7.	**VG**	**Stem: thickness**	Proposal from JP				
QN	**(b)**	thin				Sparkler (A), a-Gassan (B)	1
		medium				Hayward (A), a-Awaji (B)	2
		thick				Bruno (A), Sinzan (B)	3

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
8. (*)	**VG**	**Stem: color of shoot on sunny side**					
PQ	**(b)**	grey white					1
		green white				Hongyang (A)	2
		grey brown				King (A), Mitukou (B)	3
		yellow brown				Sparkler (A)	4
		light brown				Hort16A (A), a-Hirano (B)	5
		red brown				Ranger (A)	6
		purple brown				Bruno (A)	7
		dark brown				Kosui (B)	8
9.	**VG**	**Stem: texture of bark**					
QN	**(b)**	smooth				Sparkler (A), Sinzan (B)	1
		moderately rough				Meteor (A), a-Gassan (B)	2
		very rough				Hayward (A), a-Awaji (B)	3
10.	**VG (1)**	**Stem: density of hair**					
QN	**(b)**	absent or very sparse				Meteor (A),	1
		medium				Hayward (A)	2
		dense					3
11. (*)	**VG**	**Stem: size of lenticels**					
QN	**(b)**	very small				Kaimai (A)	1
		small				Monty (A), Sinzan (B)	3
		medium				Hayward (A), r-Gassan (A)	5
		large				Hort16A (A)	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
12. (*)	**VG**	**Stem: number of lenticels**					
QN	**(b)**	few				Meteor (A), Sigemidori (B)	3
		medium				Hayward (A), Sinzan (B)	5
		many				Bruno (A), Mitukou (B)	7
13. (*) (+)	**VG**	**Stem: height of bud support in relation to stem diameter**					
QN	**(b)**	very small				Sparkler (A)	1
		small				Hayward (A)	2
		medium				King (A), a-Awaji (B)	3
		large				Kaimai (A), Sinzan (B)	4
		very large				Kaimitu(B)	5
14. (*) (+)	**VG**	**Stem: presence of bud cover**					
QL	**(b)**	absent				Hort16A (A), Kousui (B)	1
		present				Hayward(A), Mitukou (B)	9
15. (*) (+)	**VG**	**Stem: size of hole in bud cover**					
QN	**(b)**	small				Abbott (A), Mitukou (B)	3
		medium				Hayward (A), r-Awaji (A)	5
		large				Elmwood (A), r-Nagano (A)	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
16.	**VG**	**Stem: leaf scar**					
(+)							
QN	**(b)**	flat				Meteor (A), Sinzan (B)	1
		moderately depressed				Hort16A (A), r-Nagano (A)	2
		strongly depressed				Monty (A), Kousui (B)	3
17.	**VG (2)**	**Stem: pith**					
PQ		absent					1
		lamellate				Hayward (A)	2
		solid					3
18. **(*)** **(+)**	**VG**	**Leaf blade: shape**					
PQ	**(c)**	lanceolate				Kaimai (A)	1
	(d)	ovate				Hayward (A)	2
		obovate				Bruno (A)	3
19.	**VG/ MG**	**Leaf blade: ratio length/width**					
QN	**(c)**	compressed				Matua (A)	1
	(d)	medium				Hayward (A)	2
		elongated				Kaimai (A)	3

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
20. (*) (+)	**VG**	**Leaf blade: shape of apex**					
PQ	**(c)**	caudate				Hortgem Tahi (B)	1
	(d)	acuminate				Kaimai (A), Yukimusume (B)	2
		acute				Hayward (A)	3
		rounded				Ryokuou (B)	4
		emarginate				Kaimitu (A)	5
		emarginate with acute				Hongyang (A)	6
		retuse				Sinzan (B)	7
21. (New)	**VG**	**Leaf blade: presence of basal lobes**	**ZA, CN proposal**				
QN	**(c)**	absent				Hortgem Tahi (B)	1
	(d)	present				Hayward (A)	2
22. (+)	**VG (1)**	**Leaf blade: arrangement of basal lobes**					
QN	**(c)**	far apart				Kaimai (A)	1
	(d)	slightly apart				Matua (A)	2
		touching each other				Hort16A (A)	3
		slightly overlapping				Hayward (A)	4
		strongly overlapping					5
23. (New)	**VG** (2)	**Leaf blade: number of ciliate serrations**	Proposal from JP				
QN	**(c)**	few				a-Shouwa (B)	3
	(d)	medium				a-Gassan (B)	5
		many				Mitsukou (B)	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
24.	**VG (1)**	**Leaf blade: density of hair on upper side**					
QN	**(c)**	absent or very sparse				Hort16A (A)	1
	(d)	sparse				Kaimai (A)	3
		medium				Bruno (A)	5
		dense				Meteor (A)	7
25.	**VG**	**Leaf blade: density of hair on lower side**					
QN	**(c)**	absent or very sparse				Hortgem Tahi (B), Kousui (B)	1
	(d)	sparse				Kaimitu (A), a-Gassan (B)	3
		medium				Hayward (A), a-Syowa (B)	5
		dense				Ranger (A), Shinzan (B)	7
26. (*)	**VG**	**Leaf blade: intensity of green color of upper side**					
QN	**(c)**	light				a-Gassan (B)	3
	(d)	medium				Hayward (A), Satoizumi (B)	5
		dark				Bruno (A), Sinzan (B)	7
27. (*)	**VG**	**Leaf blade: color of lower side**					
PQ	**(c)**	whitish				Sinzan (B)	1
	(d)	light green				Hortgem Tahi(B), a-Awaji (B)	2
		medium green				Bruno (A)	3
		yellow green				Hayward (A)	4
		yellow brown					5

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
28.	**VG**	**Leaf blade: variegation**					
QL	**(c)**	absent					1
	(d)	present					9
29.	**VG**	**Leaf blade: color of variegation**					
PQ	**(c)**	white only					1
	(d)	yellow only					2
		white and yellow					3
30.	**VG**	**Leaf blade: anthcyanin coloration on upper side**					
QN	**(c)**	absent					1
	(d)	present					9
31. **(+)**	**VG**	**Leaf: ratio petiole length/blade length**					
QN	**(c)**	very small				Kaimai (A)	1
	(d)	small				Gracie (A)	3
		medium				Meteor (A), Kosui (B)	5
		large				Hayward (A), Satoizumi (B)	7
32.	**VG**	**Petiole: anthocyanin coloration of upper side**					
QN	**(c)**	absent or very weak				Kaimai (A), Mitukou (B)	1
	(d)	weak				Sparkler (A), Houkou (B)	3
	(e)	medium				Hayward (A), Sinzan (B)	5
		strong				Tomua(A), a-Hirano (B)	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
33.	**VG/ MG**	**Inflorescence: number of flowers**					
QN		very few				Hayward (A)	1
		few				Matua (A)	2
		medium				Tomua (A)	3
		many				Hongyang (A)	4
34. New	**MG (2)**	**Flower bud: position of the first spike**	Proposal from JP				
QN	**(f)**	low					3
		medium				a-Shouwa (B)	5
		high				a-Gassan (B)	7
35.	**VG/ MG**	**Sepal: number**					
QN	**(f)**	few					1
		medium				Hortgem Tahi (B)	2
		many				Bruce (A)	3
36. (*) (+)	**VG**	**Sepal: main color**					
PQ	**(f)**	white				Yukimusume (B)	1
		green				Hort16A (A), Mitukou (B)	2
		brown				Tomua (A), Sinzan (B)	3
		reddish brown				Hortgem Tahi(B), a-Awaji (B)	4
37.	**VG (1)**	**Sepal: density of hairs**					
QN	**(f)**	absent or sparse					1
		medium					2
		dense				Bruce (A)	3

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
38. (*)	**VG/ MG**	**Flower: diameter**					
QN	**(f)**	small				Sparkler (A), a-Gassan (B)	3
		medium				Matua (A), Satoizumi (B)	5
		large				Sinzan (B)	7
		very large				Hayward (A)	9
39. (*) (+)	**VG**	**Flower: arrangement of petals (viewed from beneath)**					
QN	**(f)**	free				Abbott (A), a-Showa (B)	1
		touching				Matua (A), Satoizumi (B)	2
		overlapping				Hayward (A), Sinzan (B)	3
40. (+)	**VG**	**Flower: shape in profile**	Propose to delete 36 or 37. Both are not necessary.				
PQ	**(f)**	concave				Hayward (A)	1
		flat				Bruno (A)	2
		convex				Tamara (A)	3
41.	**VG**	**Petal: curvature of apex**					
QN	**(f)**	absent or weak				Hongyang (A)	1
		medium				Bruno (A), Kosui (B)	2
		strong				Hayward (A)	3

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
42. (*) (+)	**VG**	**Petal: main color on adaxial side**					
PQ		white				Hayward (A), Sinzan (B)	1
		greenish white				Hortgem Tahi (B), Satoizumi (B)	2
		yellowish white				Bruce (A), Mitukou (B)	3
		yellowish green					4
		yellow					5
		orange					6
		light pink					7
		red pink					8
		red					9
43. (*)	**VG**	**Petal: shading of main color**					
PQ	**(f)**	lighter towards base					1
		even					2
		lighter towards apex					3
44. (+)	**VG**	**Petal: secondary color on adaxial side**					
PQ	**(f)**	none					1
		white					2
		green				Hayward (A)	3
		orange					4
		light pink					5
		dark pink				Meteor (A)	6

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
45. **(+)**	**VG**	**Petal: distribution of secondary color**					
PQ	**(f)**	marginal					1
		spotted				Meteor (A)	2
		basal zone				Hayward (A)	3
46.	**VG (2)**	**Anther: color**					
PQ	**(f)**	yellow				r-Nagano (A)	1
		yellow orange					2
		grey					3
		dark purple				Mituskou (B)	4
		black				a-Syouwa (B)	5
47.	**VG**	**Style: number**					
QN	**(f)**	few				Yamagatamusume (B)	3
		medium				Satoizumi (B), Hort16A (A)	5
		many				Hayward (A), Sinzan (B)	7
48. **(*)**	**VG**	**Style: attitude**					
PQ	**(f)**	erect					1
		semi-erect				Houkou (B)	2
		horizontal				Bruno (A), Siazan (B)	3
		irregular				Hayward (A)	4

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
49. (*) (+)	**MG**	**Fruit: weight**					
QN	**(g)**	very low				Hongyang (A)	1
		low				Huaguang2 (A)	3
		medium				Tomua (A), Hort16 (A), Hortgem Tahi (B)	5
		high				Hayward (A), Jin Feng (A)	7
		very high				Jade Moon (A)	9
50. (+)	**MG**	**Fruit: length**					
QN	**(g)**	short				Kuimi (A), Hortgem Tahi (B)	3
		medium				Hayward (A)	5
		tall				Bruno (A), Hortgem Toru (B)	7
51. (*) (+)	**MG**	**Fruit: width**					
QN	**(g)**	narrow				Bruno (A)	3
		medium				Hayward (A)	5
		broad				Kuimi (A)	7
52. (*) (+)	**MG**	**Fruit: length/width ratio**					
QN	**(g)**	strongly compressed					1
		weakly compressed				Kuimi (A)	3
		medium				Hayward (A)	5
		weakly elongated				Bruno (A)	7
		strongly elongated					9

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
53. (*) (+)	**VG**	**Fruit: shape**					
PQ	**(g)**	ovate				Hort16A (A), Yamagataotome (B)	1
		oblong				Bruno(A)	2
		elliptic				Hayward (A), Mitukou (B)	3
		circular					4
		oblate				Kuimi (A), Sinzan (B)	5
		obovate				Monty(A)	6
54. (*) (+)	**VG/ MG**	**Fruit: shape in cross section (at median)**					
PQ	**(g)**	circular				Bruno (A), Mitukou (B)	1
		oblate				Hortgem Tahi (B), Kousui (B)	2
		transverse elliptic				Hayward (A)	3
55. (*) (+)	**VG**	**Fruit: shape of stylar end**					
PQ	**(g)**	strongly depressed				Hongyang (A)	1
		weakly depressed				Jade Moon (A)	2
		flat				Hayward (A), Satoizumi (B)	3
		rounded				Tomua (A), Kousui (B)	4
		weakly blunt protruding				Skelton (A)	5
		strongly blunt protruding				Hort16A (A)	6
		pointed protrusion					7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
56. **(+)**	**VG (2)**	**Fruit: degree of pointed protusion on stylar end**					
QN	**(g)**	weak					1
		medium					2
		strong					3
57. **(+)**	**VG (1)**	**Fruit: presence of calyx ring**					
QN	**(g)**	absent or weak				Bruno (A)	1
		medium				Hayward (A)	2
		strong				Qinmei (A), Hort16A (A)	3
58. **(*)** **(+)**	**VG**	**Fruit: shape of shoulder at stalk end**					
PQ	**(g)**	truncate				Hortgem Tahi (B), Mitukou (B)	1
		weakly sloping				Hayward (A), Kousui (B)	2
		strongly sloping				Skelton(A)	3
59.	**VG/ MG**	**Fruit: length of stalk**					
QN	**(g)**	short				Hortgem Tahi (B), Houmitu (A)	3
		medium				Sinzan (B), Sanukigold (A)	5
		long				Hayward (A)	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
60. **(+)**	**VG/ MG**	**Fruit: ratio stalk length/fruit length**					
QN	**(g)**	very small				Wuzhi3 (A)	1
		small				Bruno (A), Kousui (B)	3
		medium				Allison (A), Sinzan (B)	5
		large				Hayward (A)	7
		very large				Jade Moon (A)	9
61. **(+)**	**VG**	**Fruit: conspicuousness of lenticels on skin**					
QN	**(g)**	weak				Hort16A (A), Mitukou (B)	1
		medium				Hayward (A)	2
		strong				Topstar Vantini (A), Kosui (B)	3
62. **(*)**	**VG** **(1)**	**Fruit: hairiness of skin**					
QL	**(g)**	absent				Jintao (A)	1
		present				Hayward (A)	9
63. **(*)** **(+)**	**VG** **(1)**	**Fruit: density of hairs**					
QN	**(g)**	very sparse				Topstar Vantini (A)	1
		sparse				Hort 16A (A)	3
		medium				Hayward (A)	5
		dense				Bruno (A)	7
64. **(*)**	**VG** **(1)**	**Fruit: distribution of hairs**					
QL	**(g)**	evenly spread				Hayward (A)	1
		towards stylar end				Topstar Vantini (A)	2

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
65.	**VG (1)**	**Fruit: color of hairs**					
PQ	**(g)**	white					1
		yellow					2
		yellow brown				Hort16A (A)	3
		reddish brown					4
		medium brown				Hayward (A)	5
		dark brown				Bruno (A)	6
66. (*)	**VG (1)**	**Fruit: adherence of hairs to skin (when rubbed)**					
QN	**(g)**	very weak				Tomua (A)	1
		weak				Hort16A (A)	3
		medium				Abott (A)	5
		strong				Hayward (A)	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
67. (*) (+)	**VG**	**Fruit: color of skin**					
PQ	**(h)**	light green				Hongyang (A), Hortgem Rua (B)	1
		medium green				Hortgem Tahi (B), Mitukou (B)	2
		reddish green					3
		yellow					4
		orange yellow					5
		orange					6
		greenish brown				Hayward (A), Sinzan (B)	7
		reddish brown					8
		light brown				Hort16A (A)	9
		medium brown				Sanuki Gold (A)	10
		dark brown				Tomua (A), Kousui (B)	11
		purple red					12
68.	**VG (2)**	**Fruit: adherence of skin to flesh**					
QN	**(h)**	weak					3
		medium				Hortgem Tahi (B)	5
		strong				Hortgem Toru (B)	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
69. (*) (+)	**VG**	**Fruit: color of outer pericarp**					
PQ	**(h)**	light green				Sinzan (B)	1
		medium green				Hayward (A)	2
		dark green				Hortgem Toru (B)	3
		greenish yellow				Hongyang (A), Satoizumi (B)	4
		medium yellow				Hort16A (A), Kousui (B)	5
		dark yellow					6
		yellowish orange					7
		orange					8
		red					9
		red purple					10
70. (*) (+)	**VG**	**Fruit: color of locules**					
PQ	**(h)**	light green				Sinzan (B)	1
		medium green				Hayward (A)	2
		dark green				Hortgem Toru (B)	3
		greenish yellow				Satoizumi (B)	4
		medium yellow				Hort16A (A), Kousui (B)	5
		dark yellow					6
		yellowish orange					7
		orange					8
		red				Hongyang (A), Hort22D (A), Hortgem Rua (B)	9
		red purple					10

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
71. **(+)**	**VG**	**<u>Only varieties with reddish color in locules</u>: Fruit: spread of reddish color along locules**					
QN	**(h)**	very weak				Red Princess (A)	1
		weak				Honghua (A)	3
		medium				Chuhong (A)	5
		strong				Hongyang (A)	7
		very strong				Hort22D (A)	9
72.	**VG**	**<u>Only varieties with reddish color in locules</u>: Fruit: intensity of reddish color in locules**					
QN	**(h)**	light				Red Princess (A)	3
		medium				Hongyang (A)	5
		dark				Hort22D (A)	7
73. **(*)** **(+)**	**VG/ MG**	**Fruit: diameter of core relative to fruit**					
QN	**(h)**	small				Hort16A (A)	3
		small to medium				Hongyang (A)	4
		medium				Bruno (A)	5
		medium to large				Tomua (A)	6
		large				Hayward (A)	7
74. **(*)** **(+)**	**VG**	**Fruit: shape of core in cross section**					
PQ	**(h)**	circular				Jintao (A), Yukimusume (B)	1
		oblate				Hortgem Tahi (B), Sinzan (B)	2
		transverse elliptic				Hort16A(A), Mitukou (B)	3

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
75. (*)	**VG**	**Fruit: color of core**					
PQ	**(h)**	white				Hongyang (A)	1
		greenish white				Hayward (A)	2
		yellow white				Hort16A (A), Shinzan (B)	3
		orange					4
		red purple					5
76. (+)	**VG/ MG**	**Fruit: sweetness**					
QN	**(h)**	very low				Jade Moon (A)	1
MG		low				Hayward (A), Satoizumi (B)	3
		medium				Tomua (A), Yukimusume (B)	5
		high				Hort16A (A), Kousui (B)	7
77. (+)	**VG/ MG**	**Fruit: acidity**					
QN	**(h)**	low				Sanuki Gold (A), Satoizumi (B)	3
MG		medium				Hayward (A), Yamagatamusume (B)	5
		high				Bruno (A), a-Gassan (B)	7
78. (*)	**MG**	**Time of vegetative bud burst**					
QN		early				Tomua (A), Yukimusume (B)	3
		medium				Hayward (A), Sinzan (B)	5
		late				Mitukou (B)	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
79. (*) (+)	**MG**	**Time of beginning of flowering**					
QN		early				Hort16A (A), Yukimusume (B)	3
		medium				Abbott (A), Kousui (B)	5
		late				Hayward(A)	7
80. (*) (+)	**MG**	**Time of maturity for harvest**					
QN	**(g)**	early				Hortgem Tahi (B), Yamagatamusume (B)	3
		medium				Tomua (A), Kousui (B)	5
		late				Hayward (A), Yukimusume (B)	7

8. Explanations on the Table of Characteristics

8.1 Explanations covering several characteristics

Characteristics containing the following key in the second 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, on internodes 10 to 20 cm from the tip of growing shoots.

(b) All observations on the stem (including observations on the over-wintering 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 skin.

(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.

8.2 Explanations for individual characteristics

Ad. 1: Plant: sex

A hermaphrodite variety has flowers with viable pollen and will set fruit.

Ad. 3: Plant: ploidy

Ploidy is determined by counting chromosomes or by flow cytometry. The basic chromosome number n = 29.

Ad. 4: Plant: vigor

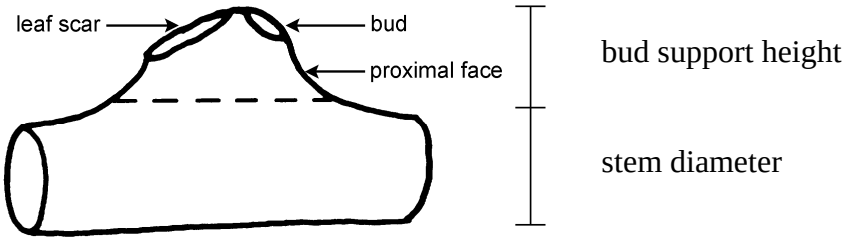
Plant vigor is determined by the evaluation of the overall abundance of vegetative growth.

Ad. 5: Young shoot: density of hairs

Ad. 63: Fruit: density of hairs

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

Ad. 13: Stem: height of bud support in relation to stem diameter
Ad. 16: Stem: leaf scar



Ad. 14: Stem: presence of bud cover
Ad. 15: Stem: size of hole in bud cover

1
bud cover absent

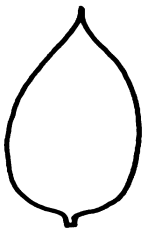
9
bud cover present
3
small

9
bud cover present
5
medium

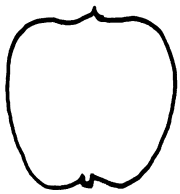
9
bud cover present
7
large

Ad. 18: Leaf blade: shape

1
lanceolate

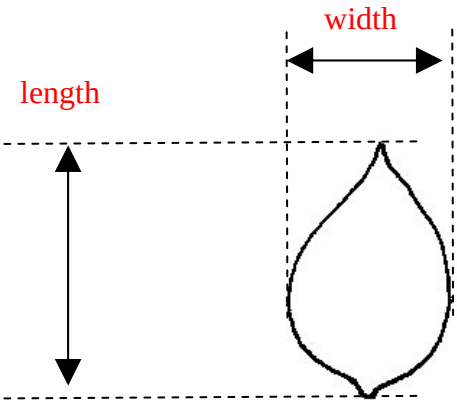


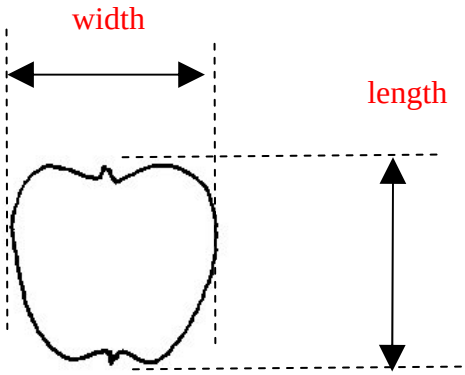
2
ovate



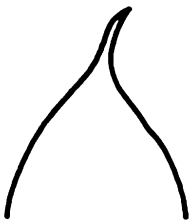
3
obovate

Ad. 19: Leaf blade: ratio length/width

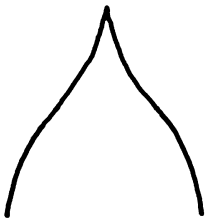




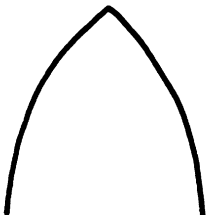
Ad. 20: Leaf blade: shape of apex



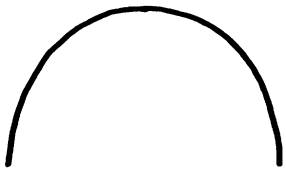
1
caudate



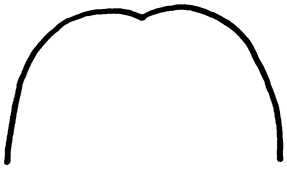
2
acuminate



3
acute

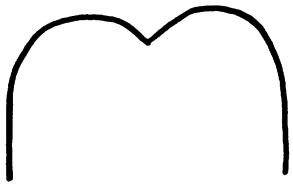


4
rounded



5
emarginate

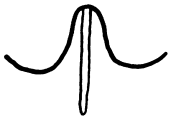
6
emarginate with acute



7
retuse

Ad. 22: Leaf blade: arrangement of basal lobes

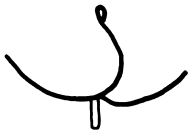
1
far apart



2
slightly apart

3
touching each other

4
slightly overlapping

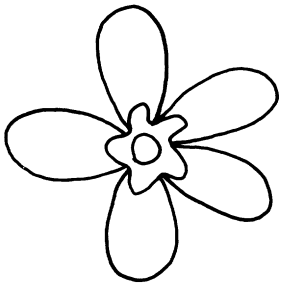


5
strongly overlapping

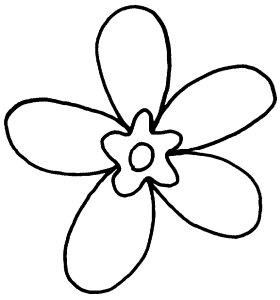
Ad. 36: Sepal: main color

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

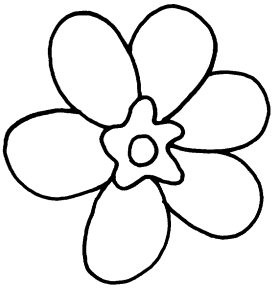
Ad. 39: Flower: arrangement of petals (viewed from beneath)



1
free



2
touching



3
overlapping

Ad. 40: Flower: shape in profile

Diagram, explanation

Ad. 42: Petal: main color on adaxial side

The petal may have more than one color. The main color is the color with the largest surface area on the 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. 44: Petal: secondary color on adaxial side

The secondary color is identified as the color with the second largest surface area on the organ.

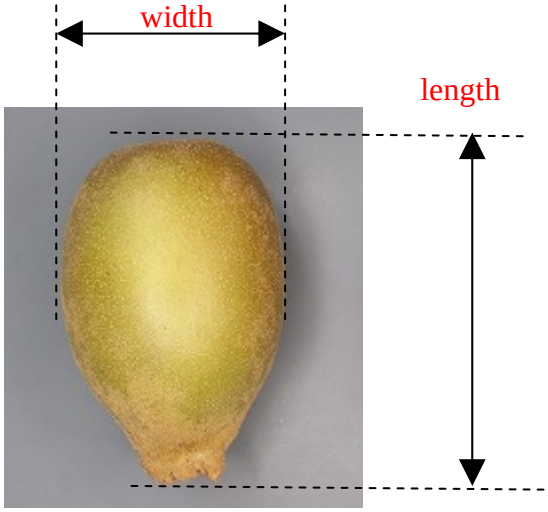
Ad. 45: Petal: distribution of secondary color

2
spotted

Ad. 49: Fruit: weight

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

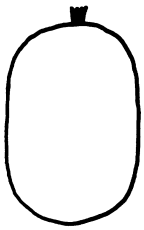
Ad. 50: Fruit: length
Ad. 51: Fruit: width



Ad. 52: Fruit: length/width ratio
Ad. 53: Fruit: shape

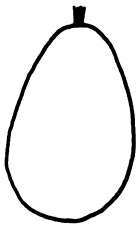
Broadest part width		
Below the middle	At middle	Above middle

Narrow/large

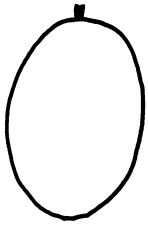


2
oblong

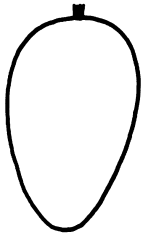
length/width ratio



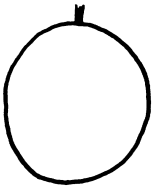
6
obovate



3
elliptic

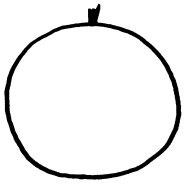


1
ovate



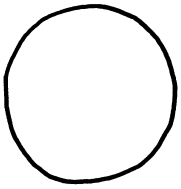
4
circular

Broad/small

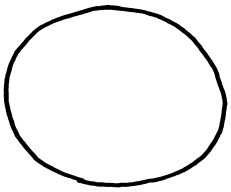


5
oblate

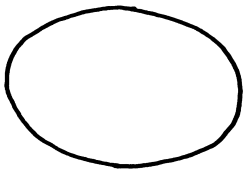
Ad. 54: Fruit: shape in cross section (at median)
Ad. 74: Fruit: shape of core in cross section



1
circular



2
oblate



3
transverse elliptic

Ad. 55: Fruit: shape of stylar end

1
strongly depressed

2
weakly depressed

3
flat

4
rounded

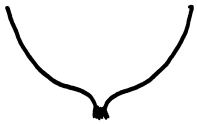
5
weakly blunt protruding

6
strongly blunt protruding

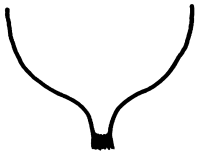
7
pointed protrusion

Ad. 56: Fruit: degree of pointed protrusion on stylar end

1
weak

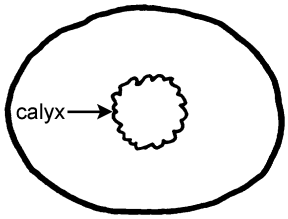


2
medium

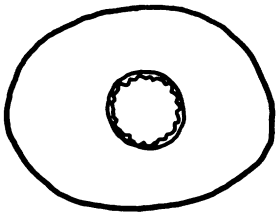


3
strong

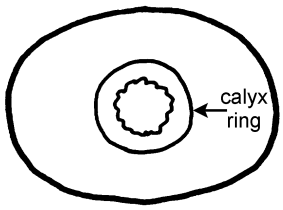
Ad. 57: Fruit: presence of calyx ring



1
absent or weak

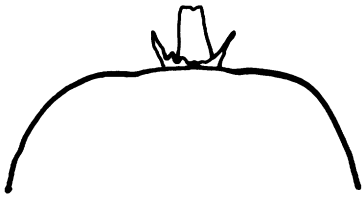


2
medium

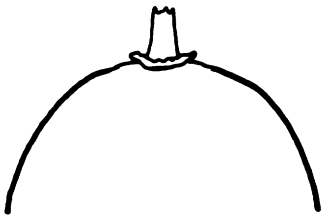


3
strong

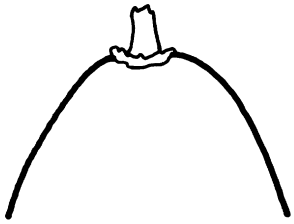
Ad. 58: Fruit: shape of shoulder at stalk end



1
truncate



2
weakly sloping



3
strongly sloping

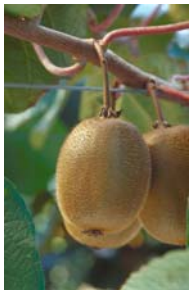
Ad. 60: Fruit: ratio stalk length/fruit length

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

small ratio = short stalk and a long fruit
medium ratio = similar stalk length to fruit length
large ratio = long stalk and a short fruit

Ad. 61: Fruit: conspicuousness of lenticels on skin

1
weak



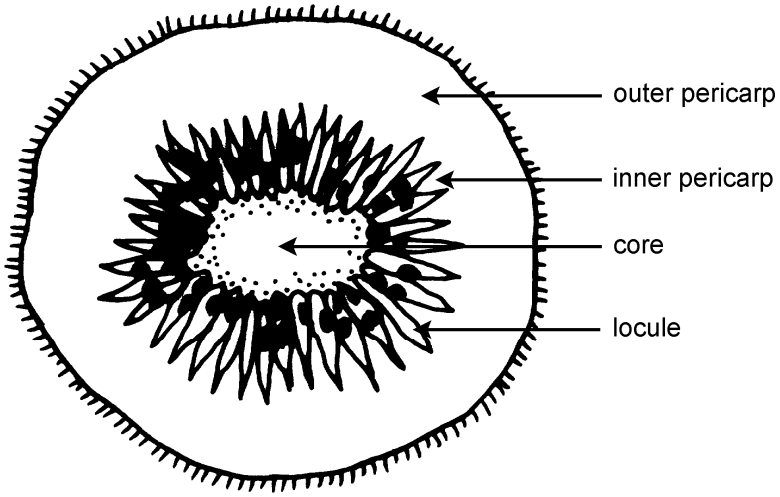
2
medium

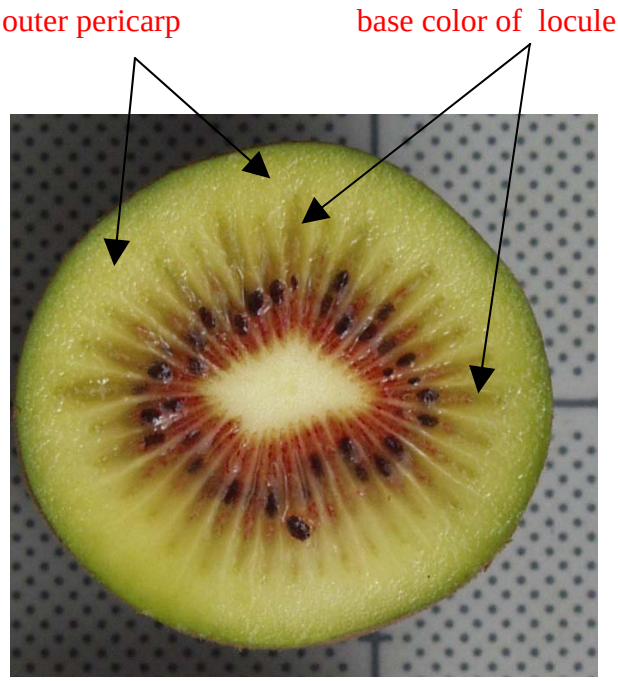
3
strong

Ad. 67: Fruit: color of skin

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

Ad. 69: Fruit: color of outer pericarp
Ad. 70: Fruit: color of locules



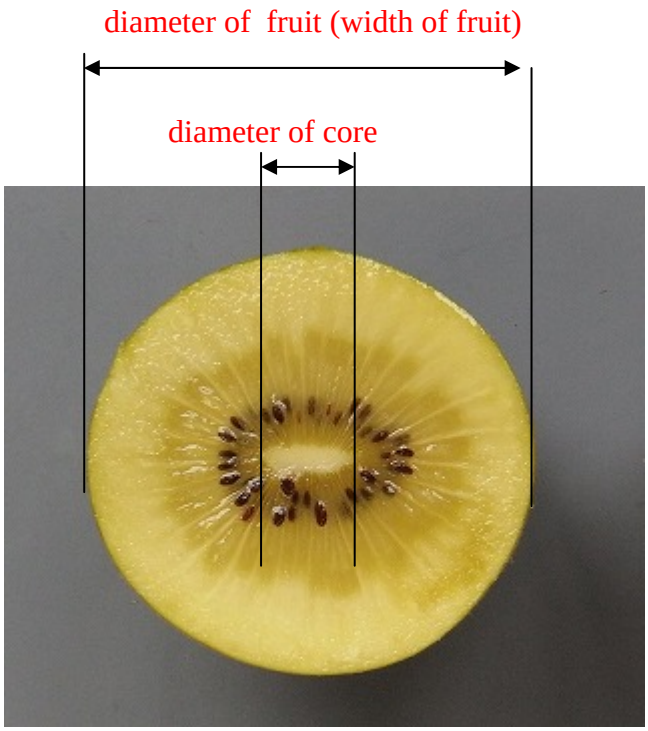


Ad. 71: Only varieties with reddish color in locules: Fruit: spread of reddish color along locules

7
strong

9
very strong

Ad. 73: Fruit: diameter of core relative to fruit



Ad. 76: Fruit: sweetness

The total soluble solids content (SSC) is measured by refractometer.

Ad. 77: Fruit: acidity

Acidity is determined by titration of titrateable acids.

Ad. 78: Time of vegetative bud burst

When 10% of buds are showing green shoots.

Ad. 79: Time of beginning of flowering

When 10% of flower buds have fully opened.

Ad. 80: Time of harvest maturity

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

9. Literature

Astridge, S.J. 1975: Cultivars of Chinese gooseberry (*Actinidia chinensis*) in New Zealand. Economic Botany 29: 357-360.

Bellini, E.; F. Monastra 1986: Propagazione, problemi vivaistici, scelta varietale e miglioramento genetico dell'actinidia. pp. 43-83. *In*: G. Bargioni, F. Lalatta and A. Febi (coord.). *Incontro frutticolo la coltura dell'actinidia.* Atti del Convegno, Verona, 29 Aprile 1986. Verona, Cassa di Risparmio di Verona, Vicennza e Belluno per l'Agricoltura.

Bergamini, A.; F. Monastra 1989: Schede per lo studio dell'actinidia in uso presso l'Istituto sperimentale per la Frutticoltura di Roma. *Annali dell'Istituto Sperimentale per la Frutticoltura* 20: 121-134.

Cui, Z.-X. 1993: [*Actinidia* in China] (in Chinese) Jinan, China: Shandong Scientific and Technology Press.

Ferguson, A.R. 1997: Kiwifruit (Chinese gooseberry). Pp. 319-323 In: The Brooks and Olmo Register of Fruit & Nut Varieties. 3rd Edition. ASHS Press, Alexandria, VA, USA.

Japanese National Test Guidelines for Kiwifruit, Matatabi and Kokuwa 1995

Organisation for Economic Co-operation and Development 1992: Kiwis. Kiwifruit.

International Standardisation of Fruit and Vegetables. OECD, Paris.

Testolin, R.; V. Crivello 1987: *Il kiwi e il suo mondo.* Venezia: Federazione Regionale Coltivatore Diretti del Veneto; Centrol Regionale IRIPSA-Quadrifoglio.

Valmori, I. 1991: *Nuove varieta in frutticoltura.* Bologna: Edizioni Agricole.

Zhang, J.; T.G. Thorp 1986: Morphology of nine pistillate and three staminate New Zealand clones of kiwifruit (*Actinidia deliciosa* (A. Chev.) C.F. Liang et A.R. Ferguson var. *deliciosa*). New Zealand Journal of Botany 24: 589-613.

10. Technical Questionnaire

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
		Application date: (not to be filled in by the applicant)

TECHNICAL QUESTIONNAIRE
to be completed in connection with an application for plant breeders' rights

In the case of hybrid varieties which are the subject of an application for plant breeders' rights, and where the parent lines are to be submitted as a part of the examination of the hybrid variety, this Technical Questionnaire should be completed for each of the parent lines, in addition to being completed for the hybrid variety.

1. Subject of the Technical Questionnaire

1.1 Botanical name	*Actinidia* Lindl.
1.2 Common name	Kiwifruit, Kiwi, Actinidia, Mihaoutao

2. Applicant

Name	
Address	
Telephone No.	
Fax No.	
E-mail address	

Breeder (if different from applicant)

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

3. Proposed denomination and breeder's reference

Proposed denomination (if available)	
Breeder's reference	

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

[#]4. Information on the breeding scheme and propagation of the variety

4.1 Breeding scheme

Variety resulting from:

4.1.1 Crossing

(a) controlled cross [ ]
(please state parent varieties)

(……..……..…)	x	(……..……..…)
female parent		male parent

(b) partially known cross [ ]
(please state known parent variety(ies))

(……..……..…)	x	(……..……..…)
female parent		male parent

(c) unknown cross [ ]

4.1.2 Mutation [ ]
(please state parent variety)

4.1.3 Discovery and development [ ]
(please state where and when discovered and how developed)

4.1.4 Other [ ]
(please provide details)

[#] Authorities may allow certain of this information to be provided in a confidential section of the Technical Questionnaire.

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

4.2 Method of propagating the variety

4.2.1 Vegetative propagation

(a) cuttings [ ]

(b) *in vitro* propagation [ ]

(c) other (state method) [ ]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

5. Characteristics of the variety to be indicated (the number in brackets refers to the corresponding characteristic in Test Guidelines; please mark the note which best corresponds).

	Characteristics	Example Varieties	Note
For male varieties			
5.1A (3)	Plant: ploidy		
	diploid	Hort16A (A), Kosui (B)	2[ ]
	tetraploid	Hortgem Tahi (B), Kaimutu (A)	4[ ]
	pentaploid	Shinzan (B)	5[ ]
	hexaploid	Hayward (A), Mitukou (B)	6[ ]
	octoploid		8[ ]
5.2 A (79)	**Time of beginning of flowering**		
	very early		1[ ]
	very early to early		2[ ]
	early	Hort16A (A), Yukimusume(B)	3[ ]
	early to medium		4[ ]
	medium	Abbott (A), Kosui (B)	5[ ]
	medium to late		6[ ]
	late	Hayward (A)	7[ ]
	late to very late		8[ ]
	very late		9[ ]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

	Characteristics	Example Varieties	Note
For female and hermaphrodite varieties			
5.1 B (3)	**Plant: ploidy**		
	diploid	Hort16A (A), Kosui (B)	2[ ]
	tetraploid	Hortgem Tahi (B), Kaimutu (A)	4[ ]
	pentaploid	Shinzan (B)	5[ ]
	hexaploid	Hayward (A), Mitukou (B)	6[ ]
	octoploid		8[ ]
5.2 B (49)	**Fruit: weight**		
	very low	Hongyang (A)	1[ ]
	very low to low		2[ ]
	low	Huaguang2 (A)	3[ ]
	low to medium		4[ ]
	medium	Tomua (A), Hort16 (A), Hortgem Tahi (B)	5[ ]
	medium to high		6[ ]
	high	Hayward (A), Jin Fen (A)	7[ ]
	high to very high		8[ ]
	very high	Jade Moon (A)	9[ ]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

	Characteristics	Example Varieties	Note
5.4 B (53)	**Fruit: shape**		
	ovate	Hongyang (A), Yamagataotome (B)	1[ ]
	oblong	Bruno (A)	2[ ]
	elliptic	Hayward (A), Mitukou (B)	3[ ]
	circular		4[ ]
	oblate	Kuimi (A), Sinzan (B)	5[ ]
	obovate	Monty (A)	6[ ]
5.4 B (55)	**Fruit: shape of stylar end**		
	strongly depressed	Hongyang (A)	1[ ]
	weakly depressed	Jade Moon (A)	2[ ]
	flat	Hayward (A), Satoizumi (B)	3[ ]
	rounded	Tomua (A), Kousui (B)	4[ ]
	weakly blunt protruding	Skelton (A)	5[ ]
	strongly blunt protruding	Hort16A (A)	6[ ]
	pointed protrusion		7[ ]
5.5 B (62)	**Fruit: hairiness of skin**		
	absent	Jintao (A)	1[ ]
	present	Hayward (A)	9[ ]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

	Characteristics	Example Varieties	Note
5.6 B (69)	**Fruit: color of outer pericarp**		
	light green	Sinzan (B)	1[ ]
	medium green	Hayward (A)	2[ ]
	dark green	Hortgem Toru (B)	3[ ]
	greenish yellow	Hongyang (A), Satoizumi (B)	4[ ]
	medium yellow	Hort16A (A), Kousui (B)	5[ ]
	dark yellow		6[ ]
	yellowish orange		7[ ]
	orange		8[ ]
	red		9[ ]
	red purple		10[ ]
5.7 B (70)	**Fruit: color of locules**		
	light green	Sinzan (B)	1[ ]
	medium green	Hayward (A)	2[ ]
	dark green	Hortgem Toru (B)	3[ ]
	greenish yellow	Satoizumi (B)	4[ ]
	medium yellow	Hort16A (A), Kousui (B)	5[ ]
	dark yellow		6[ ]
	yellowish orange		7[ ]
	orange		8[ ]
	red	Hongyang (A), Hort22D (A), Hortgem Rua (B)	9[ ]
	red purple		10[ ]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

	Characteristics	Example Varieties	Note
5.8 B (80)	**Time of maturity for harvest**		
	very early		1[ ]
	very early to early		2[ ]
	early	Hortgem Tahi (B), Yamagatamusume (B)	3[ ]
	early to medium		4[ ]
	medium	Tomua (A), Kousui (B)	5[ ]
	medium to late		6[ ]
	late	Hayward (A), Yukimusume (B)	7[ ]
	late to very late		8[ ]
	very late		9[ ]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

6. Similar varieties and differences from these varieties

Please use the following table and box for comments to provide information on how your candidate variety differs from the variety (or varieties) which, to the best of your knowledge, is (or are) most similar. This information may help the examination authority to conduct its examination of distinctness in a more efficient way.

Denomination(s) of variety(ies) similar to your candidate variety	Characteristic(s) in which your candidate variety differs from the similar variety(ies)	Describe the expression of the characteristic(s) for the **similar** variety(ies)	Describe the expression of the characteristic(s) for **your** candidate variety
Example	[e.g. Fruit weight]	*[e.g. low]*	*[e.g. medium]*

Comments:

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

[#]7. Additional information which may help in the examination of the variety

7.1 In addition to the information provided in sections 5 and 6, are there any additional characteristics which may help to distinguish the variety?

Yes [ ] No [ ]

(If yes, please provide details)

7.2 Are there any special conditions for growing the variety or conducting the examination?

Yes [ ] No [ ]

(If yes, please provide details)

7.3 Other information

A representative color image of the variety should accompany the Technical Questionnaire.

8. Authorization for release

(a) Does the variety require prior authorization for release under legislation concerning the protection of the environment, human and animal health?

Yes [ ] No [ ]

(b) Has such authorization been obtained?

Yes [ ] No [ ]

If the answer to (b) is yes, please attach a copy of the authorization.

[#] Authorities may allow certain of this information to be provided in a confidential section of the Technical Questionnaire.

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

9. Information on plant material to be examined or submitted for examination.

9.1 The expression of a characteristic or several characteristics of a variety may be affected by factors, such as pests and disease, chemical treatment (e.g. growth retardants or pesticides), effects of tissue culture, different rootstocks, scions taken from different growth phases of a tree, etc.

9.2 The plant material should not have undergone any treatment which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If the plant material has undergone such treatment, full details of the treatment must be given. In this respect, please indicate below, to the best of your knowledge, if the plant material to be examined has been subjected to:

(a) Microorganisms (e.g. virus, bacteria, phytoplasma) Yes [ ] No [ ]

(b) Chemical treatment (e.g. growth retardant, pesticide) Yes [ ] No [ ]

(c) Tissue culture Yes [ ] No [ ]

(d) Other factors Yes [ ] No [ ]

Please provide details for where you have indicated “yes”.

……

9.3 Has the plant material to be examined been tested for the presence of virus or other pathogens?

Yes [ ]
(please provide details as specified by the Authority)

No [ ]

10. I hereby declare that, to the best of my knowledge, the information provided in this form is correct:

Applicant’s name

Signature Date

[End of document]