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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS
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TECHNICAL WORKING PARTY FOR FRUIT CROPS

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WORKING PAPER ON REVISED TEST GUIDELINES FOR ORIENTAL PERSIMMON
(*Diospyros kaki* Thunb.)

Document prepared by experts from Japan

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I. Subject of these Guidelines

These Test Guidelines apply to all vegetatively propagated varieties for fruit production of *Diospyros kaki* Thunb. and their hybrids.

II. Material Required

1. The competent authorities decide when, where and in what quantity and quality the plant material required for testing the variety is to be delivered. Applicants submitting material from a State other than in which the testing takes place must make sure that all customs formalities are complied with. As a minimum, the following quantity of plant material is recommended:

> five plants (one-year old grafted plants) on rootstocks of *Diospyros kaki* or of *Diospyros lotus*.

2. The plant material supplied should be visibly healthy, not lacking in vigor or affected by any important pests or diseases. It should preferably not be obtained from *in vitro* propagation. If it has been produced by *in vitro* propagation this fact has to be stated by the applicant.

3. The plant material must not have undergone any treatment unless the competent authorities allow or request such treatment. If it has been treated, full details of the treatment must be given.

III. Conduct of Tests

1. To assess distinctness, it is essential for the trees under test to bear a satisfactory crop of fruit for at least two growing periods.

2. The tests should normally be conducted at one place. If any important characteristics of the variety cannot be seen at that place, the variety may be tested at an additional place.

3. The tests should be carried out under conditions ensuring normal growth. As a minimum, each test should include a total of 5 plants. Separate plots for observation and for measuring can only be used if they have been subject to similar environmental conditions.

4. Additional tests for special purposes may be established.

IV. Methods and Observations

1. Unless otherwise stated, all observations determined by measurement, weighing or counting should be made on 5 plants or 10 typical parts, 2 from each of 5 plants.

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.

3. Unless otherwise stated, all observations on the tree and the one-year old shoot should be made during dormant season. All observations on the one-year old shoot should be made on the middle third.

4. Unless otherwise stated, all observations on the flower should be made on fully developed flowers at full flowering.

5. Unless otherwise stated, all observations on the leaf should be made in summer on fully developed leaves from the middle third of a current season's shoot.

6. Unless otherwise stated, all observations on the fruit should be made on fruits at the time of harvest maturity.

V. Grouping of Varieties

1. The collection of varieties to be grown should 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 the variety. Their various states of expression should be fairly evenly distributed throughout the collection.

2. It is recommended that the competent authorities use the following characteristics for grouping varieties:

(a) Fruit: general shape in lateral view (characteristic 27)
(b) Fruit: color of skin at time of maturity for consumption (only varieties with firm flesh at eating) (characteristic 38)
(c) Time of maturity for consumption (characteristic 54)
(d) Fruit: astringency and flesh color (characteristic 59)

VI. Characteristics and Symbols

1. To assess distinctness, uniformity and stability, the characteristics and their states as given in the Table of Characteristics should be used.

2. Notes (numbers), for the purposes of electronic data processing, are given opposite the states of expression for each characteristic.

3. Legend

(*) Characteristics that should be used on all varieties in every growing period over which examinations are made and always be included in the variety descriptions, except when the state of expression of a preceding characteristic or regional environmental conditions render this impossible.

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

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

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1.	**Tree: vigor**					
	weak				Kurogaki, Akagaki, Izu	3
	medium				Shogatsu	5
	strong				Hiratanenashi, Saijo	7
2. **(*)**	**Tree: habit**					
	upright				Saijo	1
	semi-upright				Hiratanenashi	2
	spreading				Fuyu	3
	drooping				Shakokushi	4
3. **(*)**	**One-year old shoot:** **length**					
	short				Izu	3
	medium				Suruga	5
	long				Fuyu	7
	NZ: Do we need this character as well as No. 5? **JP: To keep as it is.**					
4.	**One-year old shoot:** **thickness**					
	thin				Gosho, Nishimurawase	3
	medium				Jiro	5
	thick				Fuyu, Hiratanenashi	7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
5.	**One-year old shoot: length of internodes**					
	short				Nishimurawase	3
	medium				Gosho	5
	long				Gionbo, Fuyu	7
6.	**One-year old shoot: color**					
	grey brown				Yotsumizo, Sanja	1
	yellow brown				Hiratanenashi	2
	brown				Atago	3
	red brown				Fuyu	4
	NZ: Look on sunny side or shaded side? Insert after No. 9.					
7.	**One-year old shoot: number of lenticels**					
	few				Toyooka	3
	medium				Fuyu, Jiro, Hiratanenashi	5
	many				Amahyakume, Takura	7
8.	**One-year old shoot: size of lenticels**					
	small				Aizumishirazu, Yotsumizo	3
	medium				Fuyu, Saijo	5
	large				Takura, Moriya	7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
9.	**One-year old shoot: shape of lenticels**					
	oblong				Kosyuhyakume	1
	elliptic				Fuyu, Jiro, Hiratanenashi	2
	round				Hanagosho, Nishimurawase	3
	UK: Change the order: 1. elliptic 2. circular 3. oblong **ZA: "circular" instead of "round"**					
10. **(+)**	**One-year old shoot: size of bud support**					
	small				Lantern	3
	medium				Akoumankaki	5
	large				Kosyuhyakume	7
11. **(+)**	**One-year old shoot: shape of bud support**					
	elongate				Square	1
	obovate				Costata	2
	circular				Tipo	3
	oblate				Akagaki	4
	ZA & UK: "elongate" should be "oblanceolate" **NZ: "elongate" should be "cuneate"** **UK: "circular" should be before "obovate"**					
12.	**Bud: size**					
	small				Farmacista Honorati	3
	medium				Amankaki	5
	large				Hiratanenashi	7
	NZ: "Bud: size" should be e.g. "One-year old shoot: size of bud" **NZ: Insert after No. 9.**					

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
13. **(*)** **(+)**	**Bud: shape of apex**					
	acute				Fuyu, Aizumishirazu	1
	obtuse				Jiro, Saijo	2
	rounded				Hiratanenashi	3
	NZ: "Bud: shape of apex" should be e.g. "One-year old shoot: shape of apex of bud" **NZ: Insert after No. 9.**					
14. **(*)** **(+)**	**Bud: position in relation to shoot**					
	adpressed				Suruga	1
	slightly held out				Fuyu	2
	markedly held out				Izu	3
	NZ: "Bud: position in relation to shoot should be e.g. "One-year old shoot: position of bud relation to axis" **NZ: Insert after No. 9.**					
15.	**Leaf blade: length**					
	short					3
	medium					5
	long					7
	DE: To mention suitable example varieties. **JP: To be deleted.**					
16.	**Leaf blade: width**					
	narrow					3
	medium					5
	broad					7
	DE: To mention suitable example varieties **JP: To be deleted.**					

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
17. **(*)** **(+)**	**Leaf blade: shape**					
	ovate				Hanagosho, Hiratanenashi	1
	elliptic				Fuyu, Aizumishirazu	2
	obovate				Shakokushi	3
	UK & ZA: Change the order: 1. elliptic 2. ovate 3. obovate					
18.	**Leaf blade: shape in cross section**					
	concave				Fuyu, Jiro, Hiratanenashi	1
	flat				Moriya, Yotsumizo	2
	convex				Tsurunohashi	3
	NZ: “flat” would be “straight” **NZ: Insert after No. 20.**					
19. **(+)**	**Leaf blade: shape of apex**					
	acuminate				Aizumishirazu	1
	acute				Fuyu, Jiro, Saijo, Atago	2
	obtuse				Suruga, Hiratanenashi	3
	ZA: No. 19 and No. 20 to be reversed.					
20. **(*)** **(+)**	**Leaf blade: shape of base**					
	cuneate				Eboshi	1
	acute				Aizumishirazu	2
	obtuse				Fuyu, Gosho	3
	rounded				Suruga, Amahyakume	4
	ZA: ”cuneate” includes “acute”.					

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
21. **(*)**	**Flower: sex expression**					
	female flowers only				Fuyu, Jiro, Hiratanenashi	1
	female and male flowers				Hanagosho	2
	female, male and hermaphrodite flowers				Meotogaki, Kubogataobishi	3
	NZ: Is this a flower or tree character? **JP: This is a flower character, and does not refer to tree character.**					
22. **(*)**	**Female flower: diameter of corolla**					
	small				Yotsumizo, Kubo	3
	medium				Aizumishirazu	5
	large				Amahyakume, Kosyuhyakume	7
23. **(+)**	**Female flower: shape of calyx when viewed from above**					
	circular				Anzai	1
	elliptic				Izu	2
	square				Fuyu, Aizumishirazu	3
	regular cruciform				Jiro, Hiratanenashi	4
	irregular cruciform				Oshorokaki	5
	ZA: “elliptic “ should be “subcircular” or “square with rounded corners” **UK: “elliptic” should be “subcircular”** **NZ: “square” should be “rhombic”**					
24.	**Female flower: size of sepal**					
	small				Hiratanenashi	3
	medium				Mercatelli	5
	large				Tipo	7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
25. (*)	**Female flower: number of corolla lobes**					
	four				Kosyuhyakume	1
	more than four				Marcatelli	2
26. (*)	**Fruit: size**					
	small				Yotsumizo	3
	medium				Izu, Hiratanenashi	5
	large				Kosyuhyakume, Fuyu	7
27. (*) (+)	**Fruit: general shape in lateral view**					
	narrow ovate				Atago, Yotsumizo	1
	ovate				Kosyuhyakume	2
	broad ovate				Hoshomaru, Hanagosho	3
	narrow elliptic					4
	elliptic				Saijo	5
	circular				Aizumishirazu, Amahyakume	6
	oblate				Fuyu, Izu, Jiro	7
	square					8
	transverse oblong				Hiratanenashi	9

UK: “transverse oblong” should be “transverse broad oblong”
JP: To delete “8. square”
UK: Change the order: 1. narrow elliptic 2. elliptic 3. circular 4. oblate 5. square 6. transverse 7. narrow ovate 8. ovate 9. broad ovate

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
28. **(*)** **(+)**	**Fruit: general shape in cross section**					
	circular				Aizumishirazu, Fuyu	1
	intermediate				Nishimurawase	2
	square				Jiro, Hiratanenashi	3
	NZ: “intermediate” should be “oblate” **UK: “intermediate” should be “subcircular”** **ZA: “intermediate” should be “subcircular” or “square with rounded corners”**					
29. **(*)** **(+)**	**Fruit: shape of apex in longitudinal section**					
	acute				Hoshomaru	1
	obtuse					2
	rounded				Hanagosho, Nishimurawase	3
	truncated				Fuyu, Akagaki	4
	depressed				Aizumishirazu, Zenjimaru	5
	ZA: “acute” should be “pointed acute” and “obtuse” should be “blunt acute” **NZ: “depressed” should be “emarginate”**					
30. **(+)**	**Fruit: grooving at apex**					
	absent or very weakly expressed				Suruga, Saijo	1
	weakly expressed				Hanagosho, Atago	2
	strongly expressed				Aizumishirazu	3

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
31. (+)	**Fruit: shallow concentric crackings around apex**					
	absent or very weakly expressed				Fuyu, Jiro, Hiratanenashi	1
	weakly expressed				Saijo	2
	strongly expressed				Ichidagaki, Dojohachiya	3
32. (+)	**Fruit: cracking of apex**					
	absent or very weakly expressed				Fuyu, Hiratanenashi, Saijo	1
	weakly expressed				Gosho, Hanagosho	2
	strongly expressed				Okugosho, Jiro	3
33. (+)	**Fruit: longitudinal groove**					
	absent or very shallow				Fuyu, Hiratanenashi	1
	shallow				Mizushima	3
	medium				Jiro	5
	deep				Gionbo	7
34.	**Fruit: wrinkles at calyx end**					
	absent or very few				Fuyu, Hiratanenashi	1
	few				Kosyuhyakume, Akagaki	3
	medium				Jiro	5
	many				Fujiwaragosho	7
35. (+)	**Fruit: calyx attachment**					
	raised				Saijo	1
	level				Yotsumizo	2
	depressed				Jiro, Izu, Fuyu, Hiratanenashi	3

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
36. (+)	**Fruit: groove at calyx end**					
	absent				Jiro, Fuyu	1
	present				Fudegaki, Damopan	9
37.	**Fruit: separation of base of calyx**					
	absent or very weakly expressed				Zenjimaru, Hiratanenashi	1
	weakly expressed				Fuyu	2
	strongly expressed				Suruga, Hanagosho	3
	JP: Change heading to "Fruit: calyx-end cracking" NZ: This is not a fruit character but a calyx character. Insert after No. 25(before fruit character).					
38. (*) (+)	**Fruit: color of skin at time of maturity for consumption (only varieties with firm flesh at eating)**					
	green yellow				Saijo	1
	yellow orange				Hiratanenashi	2
	orange				Aizumishirazu, Kosyuhyakume	3
	orange red				Jiro, Fuyu	4
	black				Kurogaki	5
	JP: Change the heading "Fruit: skin color at maturity"					

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
39. (*) (+)	**Fruit: color of skin at time of physiological ripening (only varieties with soft flesh at eating)**					
	orange				Costata	1
	dark orange				Tipo	2
	orange red				Kosyuhyakume	3
	red				Akagaki	4
	JP: Change the heading "Fruit: skin color at over-ripening time (only varieties consumed as over-ripened soft fruit)"					
40. (*) (+)	**Fruit: color of flesh at time of maturity for consumption (as for 38)**					
	yellow				Hiratanenashi, Amahyakume	1
	yellow orange				Hana Fuyu	2
	orange				Fuyu, Jiro	3
	orange red				Izu	4
	red				Suruga, Gosho	5
	brown orange				Tipo (PVNA)	6
	brown				Mercatelli (PVNA)	7
	JP: Change the heading "Fruit: flesh color at maturity"					

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
41. (*) (+)	**Fruit: color of flesh at time of physiological ripening (as for 39)**					
	yellow				Damopan (PCA)	1
	orange yellow				Costata (PCA), Fuyu (PCNA)	2
	orange				Tipo (PVA), Hana Fuyu (PCNA)	3
	red orange				Ogosho (PCNA)	4
	red				Yokono (PCA), Izu (PCNA)	5
	brown				Tipo (PVNA)	6
	dark brown				Mercatelli (PVNA)	7
	JP: Change the heading " Fruit: flesh color at over-ripening time (only varieties consumed as over-ripened soft fruit)" ZA: "brown" should be "medium brown"					
42.	**Fruit: size of brown specks in flesh**					
	absent or very small				Atago, Saijo	1
	small				Fuyu, Jiro	3
	medium				Shogatsu, Amahyakume	5
	large				Zenjimaru, Nishimurawase	7
43. (+)	**Fruit: size of fibrous central zone**					
	small				Kosyuhyakume	3
	medium				Akoumankaki	5
	large				Gosho	7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
44.	**Fruit: width of broadest sepal**					
	narrow				Saijo, Kubo	3
	medium				Hanagosho, Akagaki	5
	broad				Gosho, Yotsumizo, Fuyu, Jiro	7
	JP: "sepal" should be "calyx" **NZ: This is a flower character. Insert before fruit characters.**					
45. **(+)**	**Fruit: diameter of calyx in relation to diameter of fruit**					
	small				Naganogosho	3
	medium				Fuyu, Atago, Hiratanenashi	5
	large				Amahyakume, Dojohachiya	7
	JP: Change heading "Fruit: calyx size as compared with fruit diameter" **NZ: This is a flower character. Insert before fruit characters.**					
46. **(*)** **(+)**	**Fruit: attitude of sepals**					
	adpressed				Fuyu, Izu	1
	horizontal				Jiro	2
	semi-erect				Hiratanenashi	3
	erect				Aizumishirazu, Saijo	4
	JP: "sepal" must be "calyx" **NZ: This is a flower character. Insert before fruit characters.**					
47.	**Fruit: length of stalk**					
	short				Hanagosho, Fuyu, Jiro	3
	medium				Hiratanenashi, Saijo	5
	long				Zenjimaru, Fudegaki	7
	NZ: Insert after No. 39.					

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
48.	**Fruit: thickness of stalk**					
	thin				Saijo, Yotsumizo	3
	medium				Nishimurawase	5
	thick				Fuyu, Jiro	7
	NZ: Insert after No. 39.					
49. **(*)**	**Seed: size**					
	small				Gosho	3
	medium				Nishimurawase	5
	large				Fuyu, Atago	7
50. **(+)**	**Seed: shape in profile**					
	narrow elliptic				Atago	1
	elliptic				Saijo	2
	reniform				Mercatelli	3
	subovate				Shogatsu, Yokono	4
	subtriangular				Fuyu	5
	subcircular				Maekawajiro	6
	ZA: Change the order: 3. subcircular 4. reniform 5. subtriangular 6. subovate **NZ: "subovate" should be "ovate", "subtriangular" should be "irregular obtriangular", "subcircular" should be "irregular trullate"**					
51.	**Seed: color**					
	green brown				Saijo	1
	medium brown				Aizumishirazu, Akagaki	2
	dark brown				Fuyu, Jiro	3

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
52. **(*)**	**<u>Female flower only:</u>** **Time of flowering (80% open)**					
	early				Hiratanenashi, Nishimurawase	3
	medium				Jiro, Izu	5
	late				Fuyu, Gosho	7
53.	**Time of vegetative budburst**					
	early				Hiratanenashi	3
	medium				Kosyuhyakume	5
	late				Fuyu	7
54. **(*)** **(+)**	**Time of maturity for consumption**					
	early				Izu, Nishimurawase	3
	medium				Hiratanenashi	5
	late				Fuyu, Atago	7
	JP: Change heading “Time of maturity”					
55. **(*)** **(+)**	**Time of over-ripening**					
	very early				Mikatani-gosho	1
	early				Shakokushi	3
	medium				Tipo	5
	late				Shogatsu	7
	very late					9

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
56.	**Leaf blade: color at leaf fall**					
	green				Atago	1
	greenish brown				Koshuhyakume	2
	yellowish brown				Ogosho	3
	brownish red				Hiratanenashi	4
	JP: To be deleted. **NZ: Insert after No. 20.**					
57. **(*)** **(+)**	**Fruit: astringency under artificial pollination**					
	always absent, irrespective of presence of seed				Fuyu, Jiro, Gosho	1
	always present, irrespective of presence of seed				Saijo, Atago	2
	presence depending on presence and number of seeds				Nishimurawase, Aizumishirazu	3
	JP: To rearrange No. 57 and No. 58, make a new heading. **NZ: Some countries may not routinely use artificial pollination techniques.**					
58. **(+)**	**Fruit: change of color of flesh related to seed formation under artificial pollination**					
	absent (pollination constant)				Fuyu, Gosho, Saijo, Atago	1
	present (pollination variant)				Nishimurawase, Aizumishirazu	9
	JP: To rearrange No. 57 and No. 58, make a new heading. **NZ: Some countries may not routinely use artificial pollination techniques.**					

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
59. (+)	**Fruit: astringency and flesh color**					
new	pollination constant, non-astringent type				Fuyu, Jiro	1
	pollination constant, astringent type				Saijo, Atago	2
	pollination variant, non-astringent type				Nishimurawase, Akagaki	3
	pollination variant, astringent type				Hiratanenashi, Aizumishirazu	4

VIII. Explanations on the Table of Characteristics

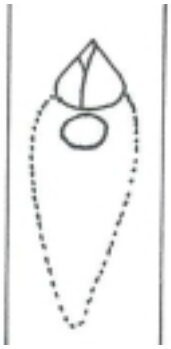
Ad. 10: One-year old shoot: size of bud support

3
small

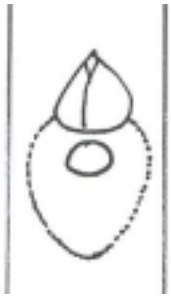
5
medium

7
large

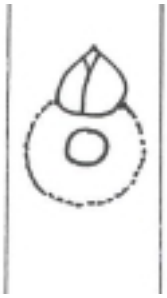
Ad. 11: One-year old shoot: shape of bud support



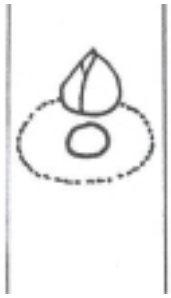
1
elongate



2
obovate



3
circular



4
oblate

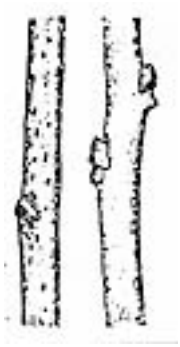
Ad. 13: Bud: shape of apex

1
acute

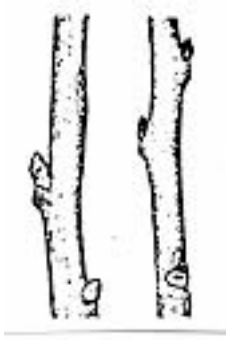
2
obtuse

3
rounded

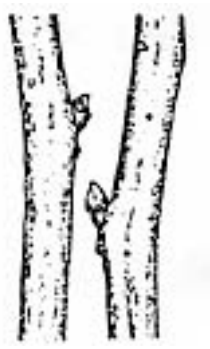
Ad. 14: Bud: position in relation to shoot



1
adpressed

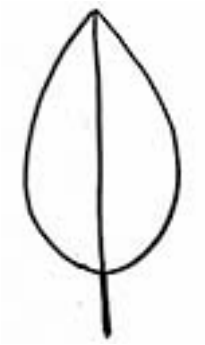


2
slightly held out

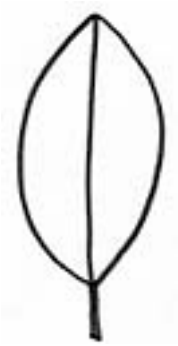


3
markedly held out

Ad. 17: Leaf blade: shape



1
ovate

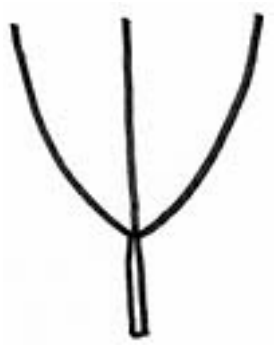


2
elliptic

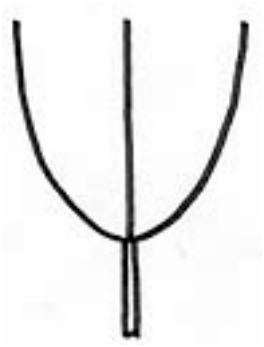
3
obovate

Ad. 20: Leaf blade: shape of base

1
cuneate



2
acute



3
obtuse

4
rounded

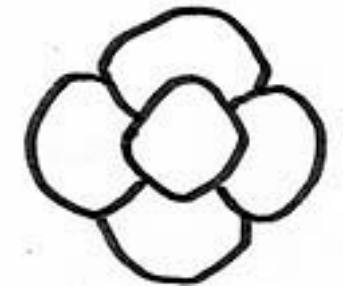
Ad. 19: Leaf blade: shape of apex

1
acuminate

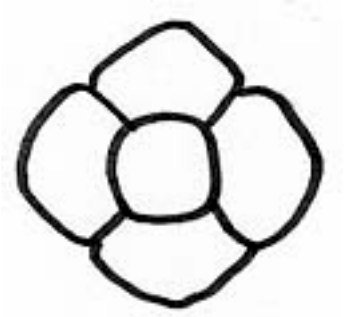
2
acute

3
obtuse

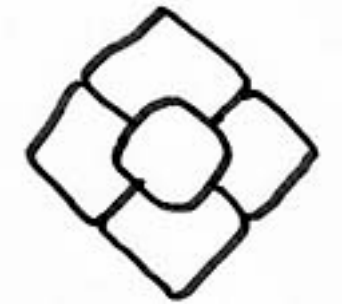
Ad. 23: Female flower: shape of calyx when viewed from above



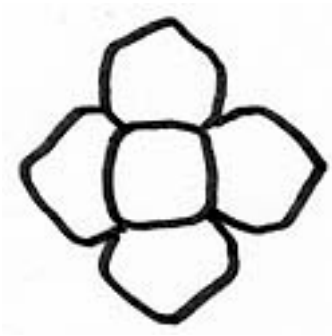
1
circular



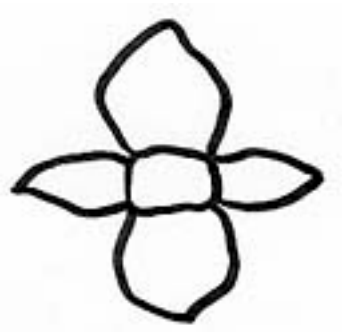
2
elliptic



3
square

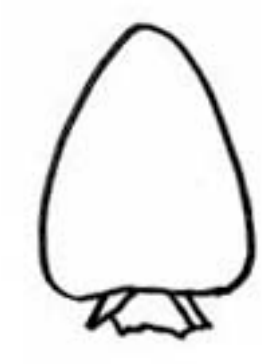


4
regular cruciform



5
irregular cruciform

Ad. 27: Fruit: general shape in lateral view

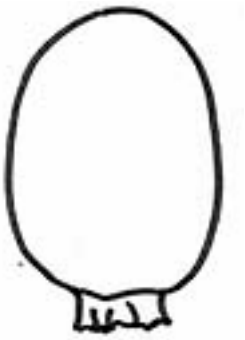


1
narrow ovate

2
ovate

3
broad ovate

4
narrow elliptic

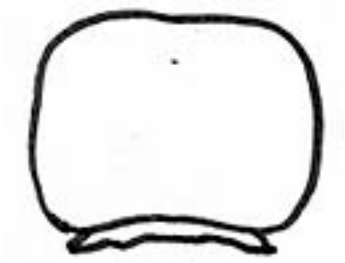


5
elliptic

6
circular

7
oblate

8
square (JP to delete)



9
transverse oblong

Ad. 28: Fruit: general shape in cross section

1
circular

2
intermediate

3
square

Ad. 29: Fruit: shape of apex in longitudinal section

1
acute

2
obtuse

3
rounded

4
truncated

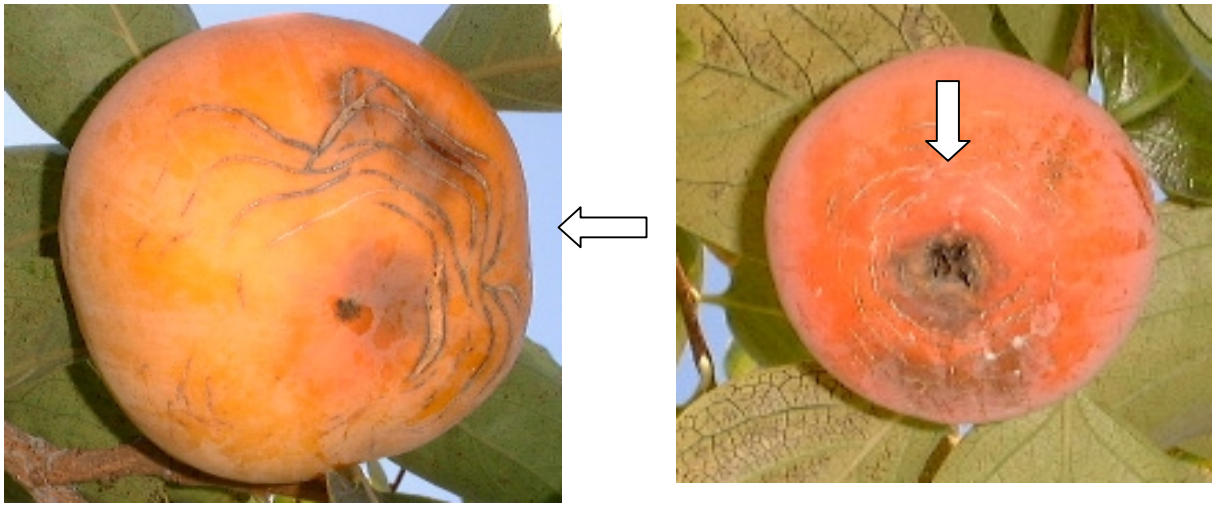
5
depressed

Ad. 30: Fruit: grooving at apex

[Pictures missing: to be completed]

Ad. 31: Fruit: shallow concentric crackings around apex

[Pictures missing: to be completed]

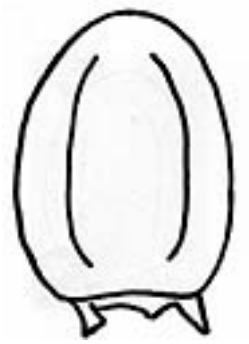


Ad. 32: Fruit: cracking of apex

[Pictures missing: to be completed]

Ad. 33: Fruit: longitudinal groove

Examples of present varieties [to be completed?]

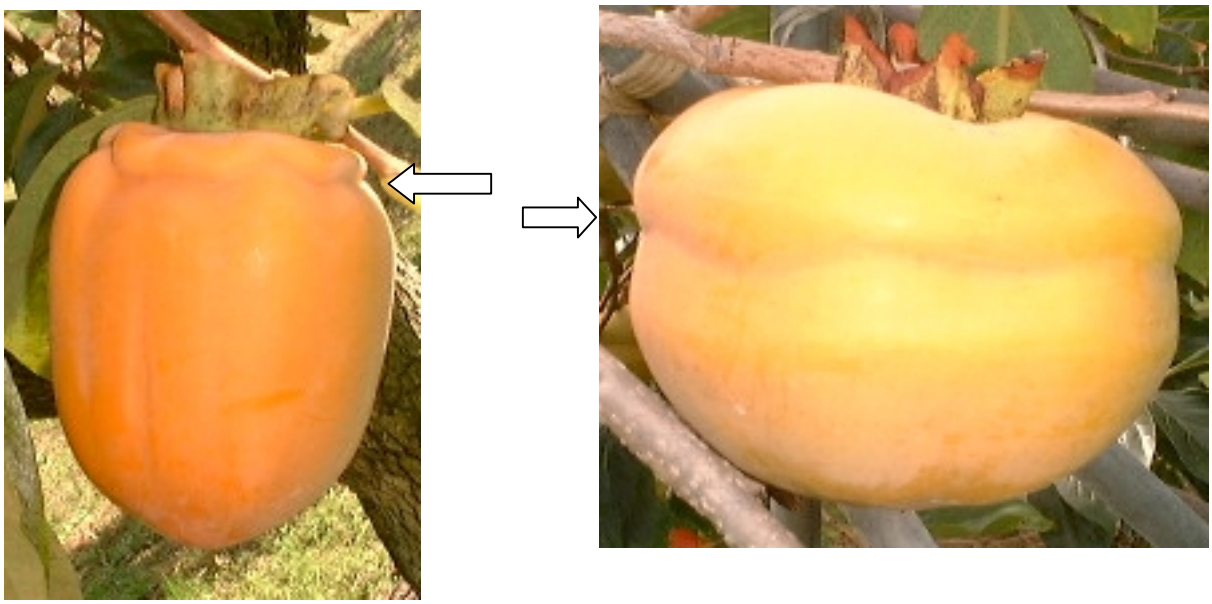


Ad. 35: Fruit: calyx attachment

1	2	3
raised	level	depressed

Ad. 36: Fruit: groove at calyx end

Examples of present varieties [legend missing]



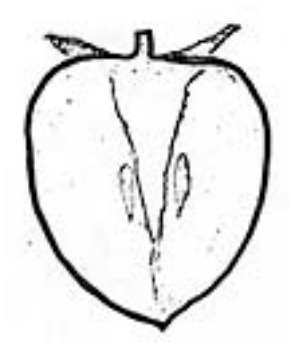
Ad. 38: Fruit: color of skin at time of maturity for consumption (only varieties with firm flesh at eating)
Ad. 40: Fruit: color of flesh at time of maturity for consumption (as for 38)
Ad. 54: Time of maturity for consumption

The time of maturity is reached when the flesh is still firm and the skin color changes from green yellow to orange red.

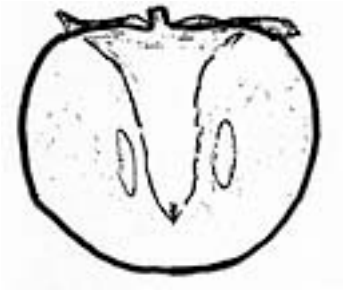
Ad. 39: Fruit: color of skin at time of physiological ripening (only varieties with soft flesh at eating)
Ad. 41: Fruit: color of flesh at time of physiological ripening (as for 39)
Ad. 55: Time of over-ripening

The time of over-ripening is reached when the flesh becomes soft. The fruits should be stored in air at normal room temperature (about 15° C), without any chemical or other treatments.

Ad. 43: Fruit: size of fibrous central zone



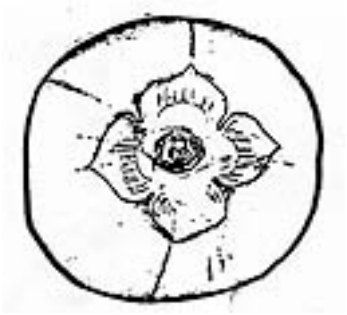
3
small



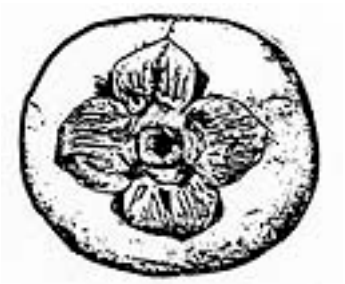
5
medium

7
large

Ad. 45: Fruit: diameter of calyx in relation to diameter of fruit



3
small



5
medium

7
large

Ad. 46: Fruit: attitude of sepals

1
adpressed

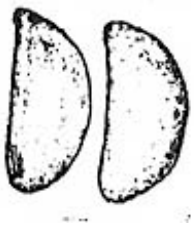
2
horizontal

3
semi-erect

4
erect

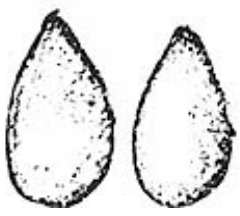
Ad. 50: Seed: shape in profile

1
narrow elliptic

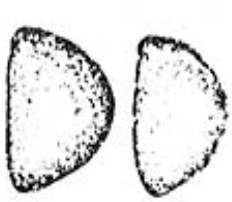


2
elliptic

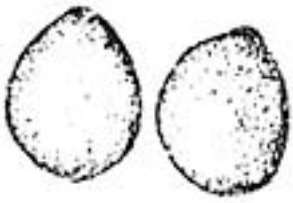
3
reniform



4
subovate



5
subtriangular



6
subcircular

Ad. 57: Fruit: astringency under artificial pollination
Ad. 58: Fruit: change of color of flesh related to seed formation under artificial pollination

Varieties can be classified by two factors, both related to seed formation under artificial pollination. These are astringency and the change of the color of fresh.

A = astringent: These varieties do not lose their astringency until the fruit becomes soft and fully ripe.

NA = non astringent: These varieties have no astringency even when the fruit is firm at maturity.

PC = pollination constant (astringent = PCA, non astringent = PCNA)
The color of the flesh of the fruits of these varieties never changes. It always remains light colored whether seeded (pollinated) or seedless (unpollinated).

PV = pollination variant (astringent = PVA, non astringent = PVNA)
The color of flesh of the fruits of these varieties is not consistent and is light-colored and completely astringent when seedless but is dark colored and with the astringency varying when seeded, this being dependent on the number of seeds present, which in turn depends on the degree of pollination.

PVA varieties have brown specks only around the seeds in flesh and even when seeded, the flesh has light-colored and astringent portion.

PVNA varieties have brown specks in flesh, the number dependant on the number of seeds. The flesh varies in depth of color and in astringency according to the number of seeds. Fruits with many seeds have dark colored flesh and are not astringent.

JP: To change as follows

Ad. 59: Fruit: astringency and flesh color

Pollination constant non-astringent type (PCNA) =	Non-astringent at maturity whether seeded or not. Flesh color unaffected by seed at maturity.
Pollination constant astringent type (PCA) =	Astringent at maturity whether seeded or not. Flesh color unaffected by seed at maturity.
Pollination variant non-astringent type (PVNA) =	Non-astringent at maturity only if seeded. Flesh color turns to brown at maturity if seeded.
Pollination variant astringent type (PVA) =	Astringent at maturity whether seeded or not. Fresh color turns to brown only around seed at maturity if seeded.

Classification of example varieties

Example Varieties	Type of astringency	Example Varieties	Type of astringency
Aizumishirazu	PVA	Kubogataobishi	PVNA
Akagaki	PVNA	Kurogaki	PVNA
Amahyakume	PVNA	Lantern	??
Akoumankaki	??	Maekawajiro	PCNA
Amankaki	??	Meotogaki	PCA
Anzai	PVNA	Mercatelli	PVNA
Atago	PCA	Mikatanigosho	PVNA
Costata	PCA	Mizushima	PVNA
Damopan	PCA	Moriya	PCA
Dojohachiya	PCA	Naganogosho	PVNA
Eboshi	PCA	Nishimurawase	PVNA
Farmacista Honorati	??	Obishi	PVNA
Fudegaki	PVNA	Ogosho	PCNA
Fujiwaragosho	PCNA	Okugosho	PCA
Fuyu	PCNA	Oshorokaki	PVNA
Gionbo	PCA	Saijo	PCA
Gosho	PCNA	Shakokushi	PCA
Hanagosho	PCNA	Sanja	PCA
Hana – fuyu	PCNA	Shogatsu	PVNA
Hazegosho	PCNA	Square	??
Hiratanenashi	PVA	Suruga	PCNA
Hoshomaru	PVA	Takura	PCA
Ichidagaki	PCA	Toyooka	PVNA
Izu	PCNA	Tsurunohashi	PCA
Jiro	PCNA	Yamato	PCA
Tipo	PVA or PVNA ??	Yokono	PCA
Kosyuhyakume	PVA	Yotsumizo	PCA
Kubo	PVNA	Zenjimaru	PVNA

Synonyms and astringent type of the example varieties

Example Varieties	Synonyms
Aizumishirazu (PVA)	Mishirazu, Sainenji, Aizugaki
Akagaki (PVNA)	Tohachi, Sakigake
Amahyakume (PVNA)	Daidaimaru, Edoichi, Bikunimaru, Tokyogaki
Damopan (PCA)	Tamopan
Dojohachiya (PCA)	Dojo
Fudegaki (PVNA)	Chinpogaki
Gionbo (PCA)	Shotenbo
Gosho (PCNA)	Yamatogosho
Hanagosho (PCNA)	Gorosukegaki, Shimogosho
Hazegosho (PCNA)	Fukurogosho
Hiratanenashi (PVA)	Hacchin, Syonaigaki, Okesagaki
Kosyuhyakume (PVA)	Fuji, Hachiya, Hyakume, Shibuhyakume, Daishiro, Edogaki, Fujisan
Moriya (PCA)	Muiya, Moiya
Obishi (PVNA)	Enza
Shakokshi (PCA)	Sakokushi, Sakokubanshi, Gijosakoksi
Shogatsu (PVNA)	Koharu, Gozen, Akaguma
Yamato (PCA)	Bonbori, Aoyata
Yotsumizo (PCA)	Mizogaki
Zenjimaru (PVNA)	Kizagaki, Edogaki

IX. Literature

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Bellini, E., Giannelli, G. (1982), New directions in growing kaka, Informatore agrario, Vol. 38, No. 4, pp. 19027-19044.

Nagamine, T., Takeda, H. (1999), The descriptors for characterization and evaluation in plant genetic resources, Vol. 1, pp. 370-375, Japan, National Institute of Agrobiological Resources, MAFF.

Cultivation and evaluation of fruit tree PGR (1996), Technical assistance activities for genetic resources projects ref. No. 9, pp. 57-68, Japan: Japan International Cooperation Agency (JICA).

Japanese National Test Guidelines for Persimmon (1979).

X. Technical Questionnaire

	Reference Number (not to be filled in by the applicant)

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

1. Species *Diospyros kaki* Thunb.

ORIENTAL PERSIMMON (fruit varieties only)

2. Applicant (name and address)

3. Proposed denomination or breeder's reference

4. Information on origin, maintenance and reproduction of the variety

4.1 Origin

(a) Seedling of unknown parentage [ ]

(b) Produced by controlled pollination [ ]
(indicate parent varieties)

– Seed bearing parent (indicate parent)

.....

– Pollen parent (indicate parent)

.....

(c) Produced by open pollination of [ ]
(indicate seed bearing parent plant)

.....

(d) Mutation or sport from (indicate original parent variety)

..... [ ]

(e) Discovery (indicate where and when)

..... [ ]

4.2 *In vitro* propagation

The plant material of the candidate variety has been obtained

by *in vitro* propagation yes [ ]
no [ ]

4.4 Virus status

(a) The variety is free from all known viruses as follows: [ ]
(indicate from which viruses)

.....

(b) The plant material is virus tested [ ]
(indicate against which viruses)

.....

(c) The virus status is unknown [ ]

4.5 Other information

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

	Characteristics	Example Varieties	Note
5.1 (27)	**Fruit: general shape in lateral view**		
	narrow ovate	Atago, Yotsumizo	1[ ]
	ovate	Kosyuhyakume	2[ ]
	broad ovate	Hoshomaru, Hanagosho	3[ ]
	narrow elliptic		4[ ]
	elliptic	Saijo	5[ ]
	circular	Aizumishirazu, Amahyakume	6[ ]
	oblate	Fuyu, Izu, Jiro	7[ ]
	square		8[ ]
	transverse oblong	Hiratanenashi	9[ ]
5.2 (38)	**Fruit: color of skin at time of maturity for consumption (only varieties with firm flesh at eating)**		
	green yellow	Saijo	1[ ]
	yellow range	Hiratanenashi	2[ ]
	orange	Aizumishirazu, Kosyuhyakume	3[ ]
	orange red	Jiro, Fuyu	4[ ]
	black	Kurogaki	5[ ]
5.3 (54)	**Time of maturity for consumption**		
	early	Izu, Nishimurawase	3[ ]
	medium	Hiratanenashi	5[ ]
	late	Fuyu, Atago	7[ ]

	Characteristics	Example Varieties	Note
5.4 (59)	**Fruit: astringency and flesh color**		
	pollination constant, non-astringent type	Fuyu, Jiro	1[ ]
	pollination constant, astringent type	Saijo, Atago	2[ ]
	pollination variant, non-astringent type	Nishimurawase, Akagaki	3[ ]
	pollination variant, astringent type	Hiratanenashi, Aizumishirazu	4[ ]

6. Similar varieties and differences from these varieties

Denomination of similar variety	Characteristic in which the similar variety is different [o)]	State of expression of similar variety	State of expression of candidate variety

o) In the case of identical states of expressions of both varieties, please indicate the size of the difference.

7. Additional information which may help to distinguish the variety

7.1 Resistance to pests and diseases

7.2 Special conditions for the examination of the variety

7.3 Other information

A representative color photo of the variety should be included in 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 that question is yes, please attach a copy of such an authorization.

[End of document]