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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

Brown Mustard

UPOV Code: BRASS_JUN

Brassica juncea (L.) Czern.

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by an expert from Japan

to be considered by the

Technical Working Party for Vegetables
at its forty-eighth session, to be held in Paestum, Italy, from June 23 to 27, 2014

Alternative Names:*

Botanical name	*English*	*French*	*German*	*Spanish*
Brassica juncea (L.) Czern.	Brown mustard, India mustard, Indian mustard, Oriental mustard	Moutarde brune	Sareptasenf	Mostaza de Sarepta; Mostaza india

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.]

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1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Brassica juncea* (L.) Czern.

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 seed.

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

sufficient seeds to produce 40 for vegetable, and 300 for agricultural plants

The seed should meet the minimum requirements for germination, species and analytical purity, health and moisture content, specified by the competent authority. In cases where the seed is to be stored, the germination capacity should be as high as possible and should, be stated by the applicant.

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

The minimum duration of tests should normally be two independent growing cycles.

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

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.

(a) Stage of development for the assessment

The optimum stage of development for the assessment of each characteristic is indicated by a number in the second column of the Table of Characteristics. The stages of development denoted by each number are described in Chapter 8. Explanations on the Table of Characteristics.

3.4 Test Design

Each test should be designed to result in a total of at least 40 for vegetable, and 300 for agricultural plants, which should be divided between at least 2 replicates.

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, for the purposes of distinctness, all observations on single plants should be made on 30 plants or parts taken from each of 30 plants and any other observations made on all plants in the test, disregarding any off-type plants.

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 The assessment of uniformity should be according to the recommendations for cross pollinated varieties in the General Introduction.

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 seed stock to ensure that it exhibits the same characteristics as those shown by the initial material supplied.

4.3.3 Where appropriate, or in cases of doubt, the stability of a hybrid variety may, in addition to an examination of the hybrid variety itself, also be assessed by examination of the uniformity and stability of its parent lines.

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:

(a) Leaf: type (characteristic 4)
(b) Leaf: shape (characteristic 5)
(c) Leaf blade: anthocyanin coloration (characteristic 14)
(d) Leaf blade: density of incision of margin (characteristic 18)
(e) Leaf blade: blistering (characteristic 19)
(f) Plant: head formation (characteristic 22)
(g) Seed: color (characteristic 30)

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.

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
(+)	See Explanations on the Table of Characteristics in Chapter 8.1	
00-89	Stage of development: see 8.2	

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

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1.	**10 VG**	**Hypocotyl: anthocyanin coloration**					
QN		absent or weak				Zasai FM-58	1
		medium				Shinkoku seisai	2
		strong				Kigarashina	3
2.	**10 MS/ VG**	**Cotyledon: length**					
QN		short				Junkei yamashiona	3
		medium				Katsuona	5
		long					7
3.	**10 MS/ VG**	**Cotyledon: width**					
QN		narrow				Junkei yamashiona	3
		medium				Katsuona	5
		broad					7
4. (*) (+)	**19 VG**	**Leaf: type**					
PQ		type1				Kigarashina	1
		type2				Riasu karashina	2
		type3				Katsuona, Red Giant	3
		type4				Miike takana	4
5. (*) (+)	**19 VG**	**Leaf: shape**					
PQ		ovate				Serihon	1
		circular				Shinkoku seisai	2
		elliptic				Akariasu	3
		oblong				Zasai FM-58	4
		obovate				Katsuona	5
		spatulate				Kikarashina	6
6. (*) (+)	**19 VG**	**Leaf: attitude**					
QN		erect				Junkei yamashiona	1
		semi-erect				Akaoba takana	3
		horizontal				Miike takana	5

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
7. **(+)**	**19** **MS/** **VG**	**Leaf: length**					
QN		short				Chirimen hakarashina	3
		medium				Miike takana	5
		long					7
8. **(+)**	**19** **MS/** **VG**	**Leaf: width**					
QN		narrow					3
		medium					5
		broad					7
9. **(+)**	**19** **MS/** **VG**	**Leaf: length of petiole**					
QN		absent or very short				Serihon	1
		short				Miike takana	3
		medium				Junkei yamashiona	5
		long				Kigarashina	7
10. **(+)**	**19** **MS/** **VG**	**Leaf: width of petiole**					
QN		narrow				Kigarashina	3
		medium				Katsuona	5
		broad				Shinkoku seisai	7
11. **(+)**	**19** **MS/** **VG**	**Only varieties with leaf: type: type 1 or 2:** **Leaf blade: size of terminal lobe**					
QN		small				Chirimen hakarashina	3
		medium				Kigarashina	5
		large					7
12. **(+)**	**19** **VG**	**Only varieties with leaf: type: type 1 or 2:** **Leaf blade: density of lateral lobe**					
QN		sparse				Akariasu	3
		medium				Kigarashina	5
		dense					7
13.	**19** **VG**	**Leaf blade: pubescence**					
QN		absent or very weak				Miike takana	1
		weak					3
		medium				Katsuona	5
		strong				Kigarashina	7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
14. (*)	**19 VG**	**Leaf blade: anthocyanin coloration**					
QL		absent				Kekkyu takana	1
		present				Akaoba takana	9
15. (*)	**19 VG**	**Only varieties with anthocyanin coloration: present: Leaf blade: intensity of anthocyanin coloration**					
QN		weak				Kigarashina	3
		medium				Miike takana	5
		strong				Akaoba takana	7
16.	**19 VG**	**Leaf: intensity of green color**					
QN		light				Kekkyu takana	3
		medium				Katsuona	5
		dark				Kigarashina	7
17. (*)	**19 VG**	**Leaf blade: undulation of margin**					
QN		absent or very weak					1
		weak				Akaoba takana	3
		medium				Katsuona	5
		strong				Chirimen hakarashina	7
18. (*) (+)	**19 VG**	**Leaf blade: density of incision of margin**					
QN		absent or very sparse				Katsuona	1
		sparse					3
		medium				Junkei yamashiona	5
		dense				Chirimen hakarashina	7
19. (*) (+)	**19 VG**	**Leaf blade: blistering**					
QN		absent or weak				Kigarashina	1
		medium					2
		strong				Katsuona	3
20. (+)	**19 MS/ VG**	**<u>Only varieties with leaf: type: type 4:</u> Leaf blade: width of midrib at widest point**					
QN		narrow				Kigarashina	3
		medium				Katsuona	5
		broad				Shinkoku seisai	7

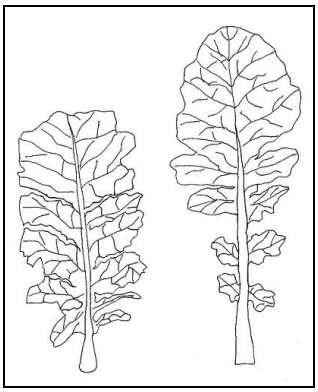
		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
21. **(+)**	**20-29 VG**	**Stem: type of main stem (excluding heading type)**					
PQ		not enlarged				Kigarashina	1
		laterally enlarged				Umino	2
		longitudinally enlarged				Zasai FM-58	3
		budding enlarged				FE-K226	4
22. **(*)** **(+)**	**19 VG**	**Plant: head formation**					
QL		absent				Kigarashina	1
		present				Kekkyu takana	9
23.	**19 MS/ VG**	**Head type only: Plant: head height**					
QN		short					1
		medium				Unzen kekkyu takana	2
		tall					3
24.	**19 MS/ VG**	**Head type only: Plant: head diameter**					
QN		narrow					1
		medium				Kekkyu takana	2
		broad					3
25.	**19 MS/ VG**	**Head type only: Plant: head number of leaf**					
QN		few					3
		medium				Kekkyu takana	5
		many					7
26.	**19 VG**	**Head type only: Plant: internal color of head**					
PQ		yellowish white				Unzen kekkyu takana	1
		light green					2
		green				Kekkyu takana	3
27. **(+)**	**19 MS/ VG**	**Head type only: Plant: length of core of head**					
QN		short					
		medium					
		long					

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
28. **(*)** **(+)**	**19, 49** **VG**	**Plant: branching**					
QL		absent				Akaoba takana	1
		present				Riasu karashina	9
29. **(+)**	**30-39** **MG**	**Time of beginning of bolting**					
QN		early				Junkei yamashiona	3
		medium				Katsuona	5
		late				Akaoba takana	7
30. **(*)** **(+)**	**79** **VG**	**Seed: color**					
PQ		yellow				Kikarashina	1
		brown				Miike takana	2
		black				Akaoba takana	3

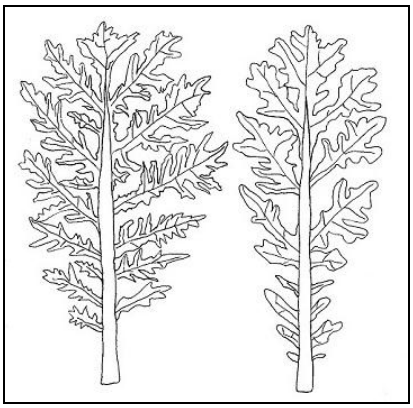
8. Explanations on the Table of Characteristics

8.1 Explanations for Individual Characteristics

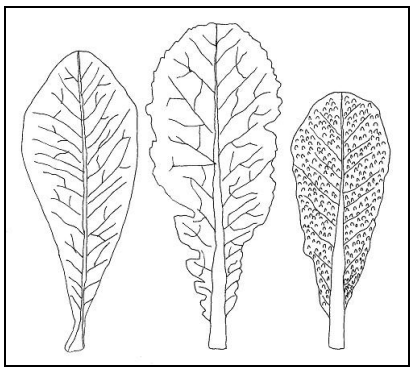
Ad. 4: Leaf: type



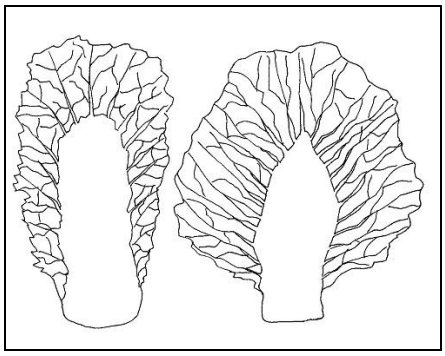
1
type 1
(lyrate)



2
type 2
division

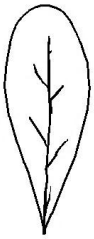
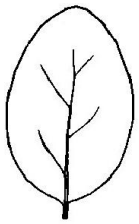
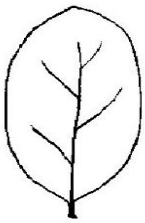
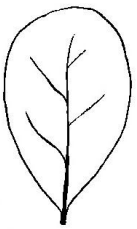
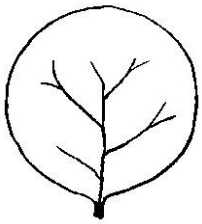


3
type 3
(entire and narrow midrib)



4
type 4
(entire and broad midrib)

Ad. 5: Leaf: shape

broad (low) ↓ width (ratio length/width) ↑ narrow (high)	← broadest part→		
	(below middle)	at middle	(above middle)
		 4 oblong	 6 spatulate
	 1 ovate	 3 elliptic	 5 obovate
		 2 circular	

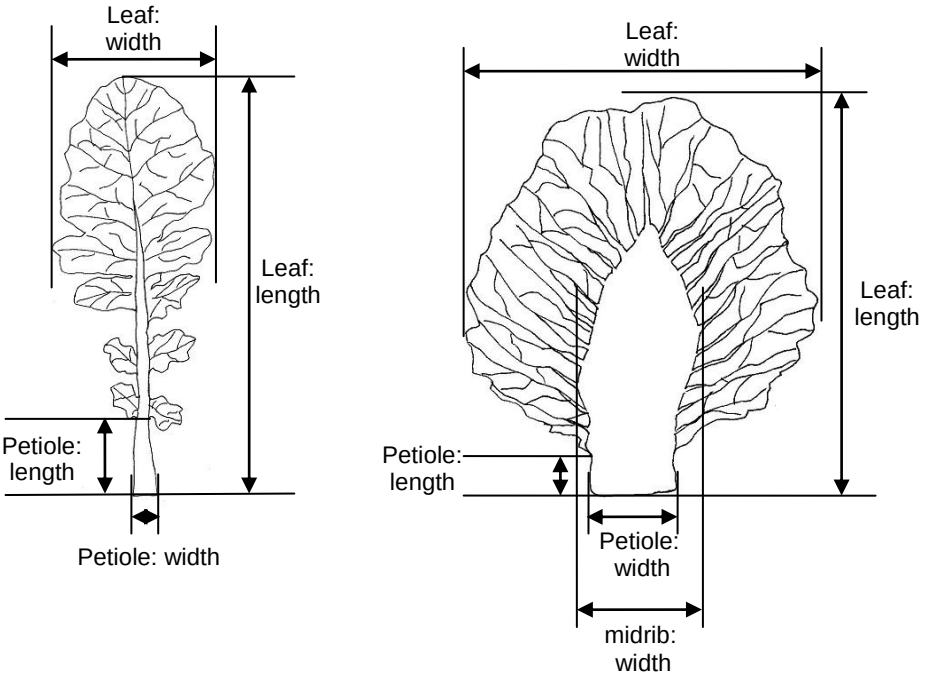
Ad. 6: Leaf: attitude

1
erect

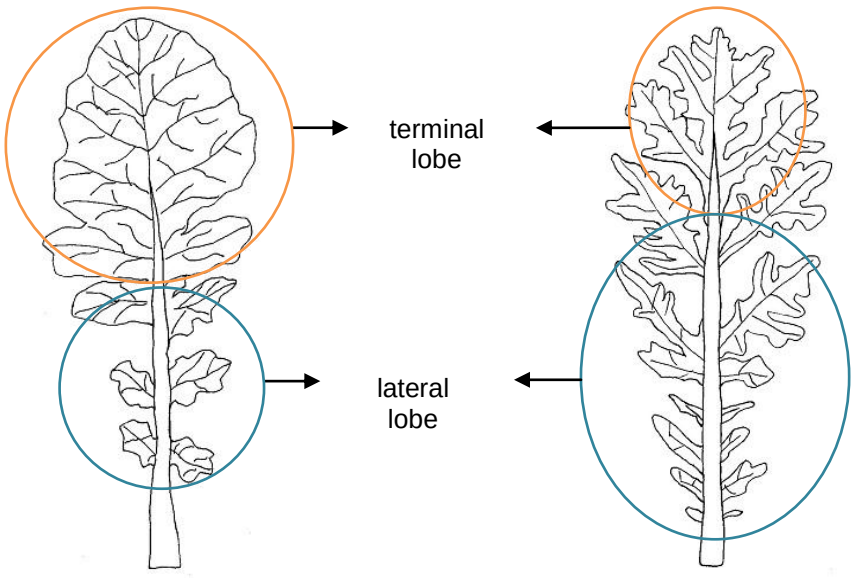
3
semi-erect

5
horizontal

Ad. 7: Leaf: length
Ad. 8: Leaf: width
Ad. 9: Leaf: length of petiole
Ad. 10: Leaf: width of petiole
Ad. 20: Leaf: Only varieties with leaf: type: type 4: Leaf blade: width of midrib at widest point



Ad. 11: Only varieties with leaf: type: type 1 or 2: Leaf blade: size of terminal lobe



Parts of the leaf blade are considered as lobes if their length is at least equivalent to the width of the leaf petiole at their point of attachment and if both notches of the blade have at least half the length of the lobe itself. Terminal lobe is top of the lobe of leaf blade.

Ad. 12: Only varieties with leaf: type: type 1 or 2: Leaf blade: density of lateral lobe

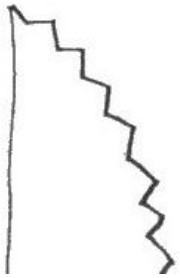
3
sparse

5
medium

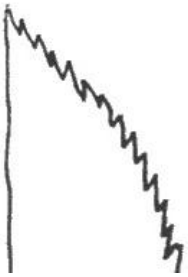
7
dense

Ad. 18: Leaf blade: density of incision of margin

3
sparse



5
medium



7
dense

Ad. 19: Leaf blade: blistering

1
absent or weak

2
medium

3
strong

Ad. 21: Stem: type of main stem (excluding heading type)

1
not enlarged

2
laterally enlarged

3
longitudinally enlarged

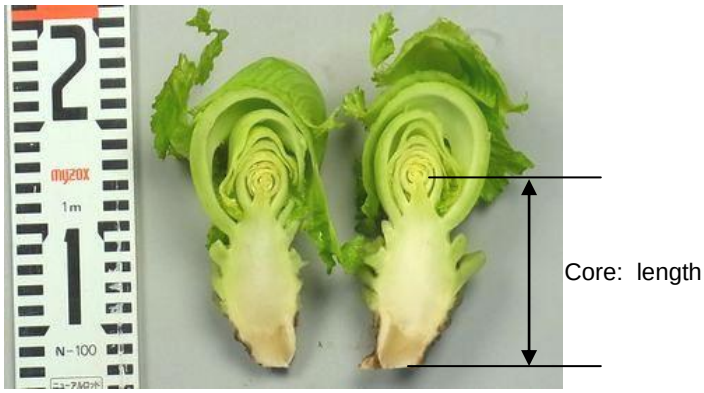
4
budding enlarged

Ad. 22: Plant: head formation

1
absent

9
present

Ad. 27: Head type only: Plant: length of core of head



Ad. 28: Plant: branching

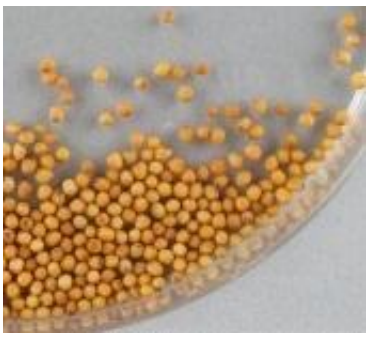
1
absent

9
present

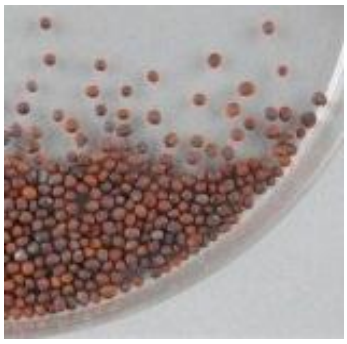
Ad. 29: Time of beginning of bolting

Time of beginning of bolting should be observed after low temperature season. Beginning of bolting time is considered as visible main stem in rosette leaf.

Ad. 30: Seed: color



1
yellow



2
brown

3
black

8.2 Key for the Stage of Development

KEY	GENERAL DESCRIPTION
0	Principal growth stage 0: Germination
01	Beginning of seed imbibition
03	Seed imbibition complete
05	Radicle emerged from seed
07	Hypocotyl with cotyledons emerged from seed
08	Hypocotyl with cotyledons growing towards soil surface
09	Emergence: cotyledons emerge through soil surface
1	Principal growth stage 1: Leaf development
10	Cotyledons completely unfolded
11	First leaf unfolded
12	2 leaves unfolded
13	3 leaves unfolded
14	4 leaves unfolded
15	5 leaves unfolded
16	6 leaves unfolded
17	7 leaves unfolded
18	8 leaves unfolded
19	9 or more leaves unfolded
2	Principal growth stage 2: Formation of side shoots
20	No side shoots
21	first side shoot detectable
22	2 side shoots detectable
23	3 side shoots detectable
24	4 side shoots detectable
25	5 side shoots detectable
26	6 side shoots detectable
27	7 side shoots detectable
28	8 side shoots detectable
29	9 or more side shoots detectable
3	Principal growth stage 3: Stem elongation
30	no internodes (“rosette”)
31	1 visibly extended internode
32	2 visibly extended internode
33	3 visibly extended internode
34	4 visibly extended internode
35	5 visibly extended internode
36	6 visibly extended internode
37	7 visibly extended internode
38	8 visibly extended internode
39	9 or more visibly extended internodes
4	Principal growth stage 5: Inflorescence emergence
40	Flower buds present, still enclosed by leaves
41	Flower buds visible from above (“green bud”)
42	Flower buds free, level with the youngest leaves
43	Flower buds raised above the youngest leaves
45	Individual flower buds (main inflorescence) visible but still closed
47	Individual flower buds (secondary inflorescences) visible but still closed
49	First petals visible, flower buds still closed (“yellow bud”)
5	Principal growth stage 6: Flowering
50	First flowers open
51	10% of flowers on main raceme open, main raceme elongating
52	20% of flowers on main raceme open
53	30% of flowers on main raceme open
54	40% of flowers on main raceme open
55	Full flowering: 50% flowers on main raceme open, older petals falling
57	Flowering declining: majority of petals fallen
59	End of flowering

6	Principal growth stage 7: Development of fruit
61	10% of pods have reached final size
62	20% of pods have reached final size
63	30% of pods have reached final size
64	40% of pods have reached final size
65	50% of pods have reached final size
66	60% of pods have reached final size
67	70% of pods have reached final size
68	80% of pods have reached final size
69	Nearly all pods have reached final size
7	Principal growth stage 8: Ripening
70	seed green, filling pod cavity
71	10% of pods ripe, seeds dark and hard
72	20% of pods ripe, seeds dark and hard
73	30% of pods ripe, seeds dark and hard
74	40% of pods ripe, seeds dark and hard
75	50% of pods ripe, seeds dark and hard
76	60% of pods ripe, seeds dark and hard
77	70% of pods ripe, seeds dark and hard
78	80% of pods ripe, seeds dark and hard
79	Fully ripe: nearly all pods ripe, seeds dark and hard
8	Principal growth stage 9: Senescence
87	Plant dead and dry
89	Harvested product

9. Literature

Ministry of Agriculture, Forestry & Fisheries of Japan., 1994: National Test Guideline for Karashina.

Tsukamoto, Y., 1994: The Grand Dictionary of Horticulture Volume 1. The Shogakukan Ltd., Tokyo, Japan, pp. 520 to 522.

Takasi A., 2004: Yasai-engei-daihyakka 17. Shadanhojin Nousan-gyoson-bunkakyokai. Tokyo, Japan. 169-233

Fujishiro, T., 1996: Breeding processes and characteristics of a newly bred leaf mustard (*Brassica Juncea* Coss.)., Kanagawa, Japan.

Uwe Meier. Federal Biological Research Centre for Agriculture and Forestry, 2001: Growth stages of mono-and dicotyledonous plants, BBCH Monograph,

Roger Phillips, Martyn Rix., 1993: VEGETABLES (The Pan Garden Plants Series) p.44

Joy Larkcom., 1991: Oriental Vegetables (The Complete guide for Garden and Kitchen) London, United Kingdom. pp. 39 to 45

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

1. Subject of the Technical Questionnaire

1.1 Botanical name	*Brassica juncea* (L.) Czern
1.2 Common name	Brown Mustard

2. Applicant

Name	
Address	
Telephone No.	
Fax No.	
E-mail address	
Breeder (if different from applicant)	

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 Seed-propagated varieties

(a) Self-pollination [ ]
(b) Cross-pollination
(i) population [ ]
(ii) synthetic variety [ ]
(c) Hybrid [ ]
(d) Other [ ]
(please provide details)"

4.2.2 Other [ ]
(please provide details)

In the case of hybrid varieties the production scheme for the hybrid should be provided on a separate sheet. This should provide details of all the parent lines required for propagating the hybrid e.g.

Single Hybrid

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

Three-Way Hybrid

(……..……..) x (……..……..)
female line male line

(……..……..) x (……..……..)
single hybrid used as female parent male parent

and should identify in particular:

(a) any male sterile lines
(b) maintenance system of male sterile lines.

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
5.1 (4)	**Only for vegetable varieties: Leaf: type**		
	type1	Kigarashina	1 [ ]
	type2	Riasu karashina	2 [ ]
	type3	Katsuona, Red Giant	3 [ ]
	type4	Miike takana	4 [ ]
5.2 (5)	**Leaf: type**		
	ovate	Serihon	1 [ ]
	circular	Shinkoku seisai	2 [ ]
	elliptic	Akariasu	3 [ ]
	oblong	Zasai FM-58	4 [ ]
	obovate	Katsuona	5 [ ]
	spatulate	Kikarashina	6 [ ]
5.3 (6)	**Leaf: attitude**		
	erect	Junkei yamashiona	1 [ ]
	erect to semi-erect		2 [ ]
	semi-erect	Akaoba takana	3 [ ]
	semi-erect to horizontal		4 [ ]
	horizontal	Miike takana	5 [ ]
5.4 (14)	**Leaf blade: anthocyanin coloration**		
	absent	Kekkyu takana	1 [ ]
	present	Akaoba takana	9 [ ]

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

	Characteristics	Example Varieties	Note
5.5 (15)	**Only varieties with anthocyanin coloration: present: Leaf blade: intensity of anthocyanin coloration**		
	very weak		1 [ ]
	very weak to weak		2 [ ]
	weak	Kigarashina	3 [ ]
	weak to medium		4 [ ]
	medium	Miike takana	5 [ ]
	medium to strong		6 [ ]
	strong	Akaoba takana	7 [ ]
	strong to very strong		8 [ ]
	very strong		9 [ ]
5.6 (17)	**Leaf blade: undulation of margin**		
	absent or very weak		1 [ ]
	very weak to weak		2 [ ]
	weak	Akaoba takana	3 [ ]
	weak to medium		4 [ ]
	medium	Katsuona	5 [ ]
	medium to strong		6 [ ]
	strong	Chirimen hakarashina	7 [ ]
	strong to very strong		8 [ ]
	very strong		9 [ ]
5.7 (18)	**Leaf blade: density of incision of margin**		
	absent or very sparse	Katsuona	1 [ ]
	very sparse to sparse		2 [ ]
	sparse		3 [ ]
	sparse to medium		4 [ ]
	medium	Junkei yamashiona	5 [ ]
	medium to dense		6 [ ]
	dense	Chirimen hakarashina	7 [ ]
	dense to very dense		8 [ ]
	very dense		9 [ ]

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

	Characteristics	Example Varieties	Note
5.8 (19)	**Leaf blade: blistering**		
	absent or weak	Kigarashina	1 [ ]
	medium		2 [ ]
	strong	Katsuona	3 [ ]
5.9 (22)	**Plant: head formation**		
	absent	Kigarashina	1 [ ]
	present	Kekkyu takana	9 [ ]
5.10 (28)	**Plant: branching**		
	absent	Akaoba takana	1 [ ]
	present	Riasu karashina	9 [ ]
5.11 (30)	**Seed: color**		
	yellow	Kikarashina	1 [ ]
	brown	Miike takana	2 [ ]
	black	Akaoba takana	3 [ ]

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	*Leaf blade: shape of apex*	*acute*	*obtuse*

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

7.3.1 Main use

(a) vegetable [ ]
(b) seed [ ]
(c) other [ ]
(please provide details)

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”.

……

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

Applicant’s name

Signature Date

[Annex follows]

ANNEX

Comments by the Subgroup

ZA Comments on Brown Mustard 2014

2.3	To read: "sufficient seeds to produce 40 plants for vegetable varieties, and 300 plants for agricultural varieties"
3.4	To read: "… at least 40 plants for vegetable varieties, and 300 plants for agricultural varieties, which …."
Char. 11	State 7 to read "broad"
Char. 37	"peduncle" to be replaced with "pedicel"
Char. 40	"peduncle" to be replaced with "pedicel"

NL Comments on Brown Mustard 2014

2.3	NL: 20,000? seeds for agricultural varieties 3.000 seeds for vegetable varieties
4.2.3	~~4.2.3 For the assessment of uniformity of single cross hybrids, a population standard of 3% and an acceptance probability of at least 95% should be applied for inbred plants obviously resulting from the selfing of a parent line. In the case of a sample size of 40 plants, 3 inbred plants are allowed. In the case of a sample size of 300 plants, 14 off-types are allowed~~.
4.2.4	4.2.4 For the assessment of uniformity of hybrid varieties resulting from at least one cross-pollinated parent, the recommendations in the General Introduction for cross-pollinated varieties should be followed, as appropriate NL: This is not according to the draft TG 05 April 2013 nor to the abstract report mustard TWV_47_34.
5.3	NL: (g) Seed: color (characteristic 41)
Char. 4	. **NL agrees**
Char. 5	type3 Katsuona NL: Red Giant
Char. 6	**to delete NL agrees**
Char. 20	**to delete NL agrees**
Char. 23	**to delete. There are correlations leaf and midrib anthocyanin. NL agrees**
Char. 24	NL: We do not know varieties with state 2,3,4 so we can not decide
Char. 26	**Head type only: Plant: head height**
Char. 27	**Head type only: Plant: head diameter**
Char. 28	**Head type only: Plant: number of leaves on head**
Char. 29	**Head type only: Plant: internal color of head**
Char. 30	**Head type only: Plant: length of core of head**
Char. 33	**to delete NL agrees**
Char. 34	**to delete NL agrees**
Char. 35	**to delete NL agrees**
Char. 36	**If there is no appropriate example variety, to be deleted NL agrees**
Char. 37	**If there is no appropriate example variety, to be deleted NL agrees**
Char. 38	**If there is no appropriate example variety, to be deleted NL agrees**
Char. 39	**If there is no appropriate example variety, to be deleted NL agrees**
Char. 40	**If there is no appropriate example variety, to be deleted NL agrees**
Ad. 25	NL: To add example for Note 1 absent
Ad. 32	Time of beginning of bolting should be observed ~~at~~ after low temperature

	season. Beginning of bolting time is considered as visible main stem in rosette leaf.
	Some of the text boxes at 8.1 EXPLANATIONS FOR INDIVIDUAL CHARACTERISTICS are too small and do not show the full text.

DE Comments on Brown Mustard 2014

ISF Comments on Brown Mustard 2014

Char. 24	As we read it, Japan does not wish to distinguish between vegetable and agricultural species, however char. 5 and 6 are "only for vegetable varieties". If there is no explanation added on how to distinguish the two types, it does not look logical to us. Option could be to leave this distinction out of char. 5 and 6.

KR Comments on Brown Mustard 2014

Char. 5	Can we change the order of state of expressions and wording of Characteristics No 5. Only for vegetable varieties: Leaf: type like that (4) type 4 (entire and broad midrib) => (1) broad midrib with entire leaf (3) type 3 (entire and narrow midrib) => (2) Narrow midrib with entire or lobed incision (1) type 1 (lyrate) => (3) Narrow midrib with cleft or parted incision (2) type 2 (division) => (4) Narrow midrib with bipinnate incision

[End of Annex and of document]