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TG/VIGNA_RAD(proj.1)
ORIGINAL: English
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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

MUNG BEAN

UPOV Code(s): VIGNA_RAD

Vigna radiata (L.) R. Wilczek

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by experts from China
to be considered by the
Technical Working Party for Agricultural Crops
at its fifty-second session, to be held virtually
from 2023-05-22 to 2023-05-26

Disclaimer: this document does not represent UPOV policies or guidance

Alternative names:*

Botanical name	*English*	*French*	*German*	*Spanish*
Vigna radiata (L.) R. Wilczek	Mung Bean	Haricot mungo	Mungbohne, Mungobohne	Frijol mungo

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 *Vigna radiata* (L.) R. Wilczek.

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:

1000 g or at least 10,000 seeds

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

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

3.1.2 The two independent growing cycles should be in the form of two separate plantings.

3.1.3 The testing of a variety may be concluded when the competent authority can determine with certainty the outcome of the test.

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.

3.4 Test Design

3.4.1 Each test should be designed to result in a total of at least 100 plants, which should be divided between at least 2 replicates.

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.

To assess distinctness of hybrids, the parent lines and the formula may be used according to the following recommendations:

(i) description of parent lines according to the Test Guidelines;

(ii) check of the originality of the parent lines in comparison with the variety collection, based on the characteristics in Chapter 7, in order to identify similar parent lines;

(iii) check of the originality of the hybrid formula in relation to the hybrids in the variety collection, taking into account the most similar lines; and

(iv) assessment of the distinctness at the hybrid level for varieties with a similar formula.

Further guidance is provided in documents TGP/9 "Examining Distinctness" and TGP/8 "Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability".

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 or Parts of Plants to be Examined

Unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 20 plants or parts of plants taken from each of 20 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 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 These Test Guidelines have been developed for the examination of seed-propagated varietes. For varieties with other types of propagation, the recommendations in the General Introduction and document TGP/13 "Guidance for new types and species" Section 4.5 "Testing Uniformity" should be followed.

4.2.3 The assessment of uniformity for hybrid varieties depends on the type of hybrid and should be according to the recommendations for hybrid 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.

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:

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 All relevant states of expression are presented in the characteristic.

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

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1 2	**3 4**	**5 6**	**7**			
	Name of characteristics in English	**Nom du caractère en français**	**Name des Merkmals auf Deutsch**	**Nombre del carácter en español**		
	states of expression	types d'expression	Ausprägungsstufen	tipos de expresión		

1 Characteristic number

2 (*) Asterisked characteristic – see Chapter 6.1.2

3 Type of expression
QL Qualitative characteristic – see Chapter 6.3
QN Quantitative characteristic – see Chapter 6.3
PQ Pseudo-qualitative characteristic – see Chapter 6.3

4 Method of observation (and type of plot, if applicable)
MG, MS, VG, VS – see Chapter 4.1.5

5 (+) See Explanations on the Table of Characteristics in Chapter 8.2

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

7 Growth stage key 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.	**QL VG**	**(+) (a), (b), (c)**	**10**			
	Hypocotyl: anthocyanin coloration					
	absent				Zhonglv1 C3408	1
	present				Dayingelv 925 C5786	9
2.	**QN MG**		**20**			
	Time of flowering					
	very early					1
	early				Baolv 942 C5636	3
	medium				Zhonglv1 C3408	5
	late				Lvdou C2969	7
	very late					9
3.	**PQ VG|A**		**30**			
	Stem: color					
	green					1
	greenish purple					2
	purple					3
4.	**QN VG|A**	**(+)**	**30**			
	Stem: fuzz					
	absent					1
	few					2
	many					3
5.	**QN VG|B**	**(+)**	**30**			
	Leaf: type					
	three leaflets					1
	many leaflets					2
6.	**PQ VG**	**(+)**	**30**			
	Leaf: shape of leaflet					
	split leaf shape					
	narrow oval					1
	medium oval					2
	broad oval					3

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
7.	**QN VG|B**		**30**			
	Leaf: intensity of green color					
	light					1
	medium					2
	dark					3
8.	**QL VG|B**		**30**			
	Leaf: anthocyanin coloration at the base of leaflets					
	absent				Zhonglv1 C3408	1
	present				Dayingelv 925 C5786	9
9.	**QN VG|B**		**30**			
	Petiole: intensity of anthocyanin coloration					
	absent or very weak					1
	weak					2
	strong					3
10.	**PQ VG**		**30**			
	Flowers: color of corolla					
	light yellow					1
	medium yellow					2
	yellow with purple					3
11.	**PQ VG**		**30**			
	Flower: keel flap color					
	absent					1
	present					9
12.	**PQ VG**		**30**			
	Flowers: sepals colored					
	absent					1
	present					9

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
13.	**QN MG**		**40**			
	Mature period					
	very early					1
	early				Baolv 942 C5636	3
	medium				Zhonglv1 C3408	5
	late				Lvdou C2969	7
	very late					9
14.	**PQ VG**	**(+)**	**40-50**			
	Plant: habit					
	upright				Zhonglv1 C3408	1
	semi sprawl				Yinggelvdou C1547	2
	sprawl				Lanlvdou C4157	3
15.	**QN MS**		**40-50**			
	Pod: length					
	very short				Gaaoyangxiaolvdou C0229	1
	short				Dayanglvdou C0385	3
	medium				Zhonglv1 C3408	5
	tall				Quyangxiaolvdou C1819	7
	very tall				Hulvdou C1431	9
16.	**QN MS**		**40-50**			
	Plant: number of branches					
	few					1
	medium					2
	many					3
17.	**QN VG**	**(+)**	**40-50**			
	Plant: branches at angles to main stem					
	small					1
	medium					2
	large					3

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
18.	**QN MS**		**50**			
	Plant: number of pod					
	very few				Dayanglvdou C0385	1
	few				Gaoyangxiaolvdou	3
	medium				Youlvdou C3247	5
	many				Zhonglv1 C3408	7
	very many				Hulvdou C1431	9
19.	**QN VG**		**50**			
	Plant: pod-shattering					
	absent or very weak					1
	weak					2
	strong					3
20.	**QN MS**		**40-50**			
	Stem: number of section					
	few					1
	medium					2
	many					3
21.	**PQ MS|C**		**50**			
	Pod: length					
	short				Hulvdou C2185	1
	medium				Zhonglv1 C3408	2
	long				Dayingelv 925 C5786	3
22.	**QN MS|C**		**50**			
	Pod: number of seed					
	few				Fuxinlvdou C3455	1
	medium				Zhonglv1 C3408	2
	many				Dengxianlvdou C2737	3
23.	**PQ VG|C**	**(+)**	**50**			
	Plant: pod-shattering					
	straight					1
	falciform					2
	claw					3

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
24.	**PQ VG|C**		**40**			
	Stem: number of section					
	round				Dengxianlvdou C2737	1
	oblate				Zhonglv1 C3408	2
25.	**PQ VG|C**	**(+)**	**50**			
	Pod: color					
	yellowish white				Hulvdou C2185	1
	brown				Dengxianlvdou C2737	2
	black				Zhonglv1 C3408	3
26.	**PQ VG|C**		**50**			
	Pod: color of hairiness					
	grey					1
	brown					2
27.	**QN MG**		**50**			
	Seed: weight					
	small					1
	medium					3
	large					5
28.	**PQ VG**	**(+)**	**50**			
	Seed: shape					
	sphere				Pinlvyouzi 88-49 C5234	1
	cylindrical				Dayingelv 925 C5786	2
	physical				Zhonglv1 C3408	3
29.	**PQ VG**	**(+)**	**50**			
	Seed: ground color of testa					
	green				Zhonglv1 C3408	1
	yellow				Suhuang 1 C6402	2
	blue				Lanlvdou C4157	3
	brown				Hulvdou C2185	4
	black				Heizhengzhu C5503	5

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
30.	**QN VG**		**50**			
	Suitable only for green seedcoat variety: Seed: intensity of green color					
	light					1
	medium					2
	dark					3
31.	**QL VG**		**50**			
	Seed: seed coat luster					
	absent					1
	present					9

8. Explanations on the Table of Characteristics

8.1 Explanations covering several characteristics

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

(a) Observe the middle and upper parts of the main stem.

(b) Measured lateral leaflets of compound leaves at segments 8 to 10 in the middle and upper parts of the plant.

(c) Measure the pod in the upper part of the plant.

8.2 Explanations for individual characteristics

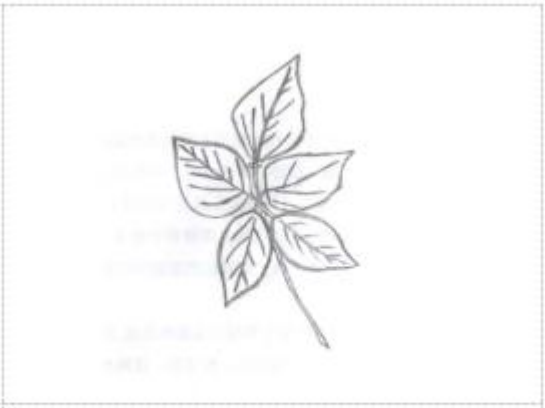
Ad. 1: Hypocotyl: anthocyanin coloration

	
absent	present
1	9

Ad. 4: Stem: fuzz

		
absent	few	many
1	2	3

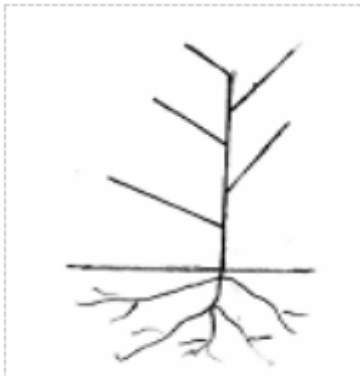
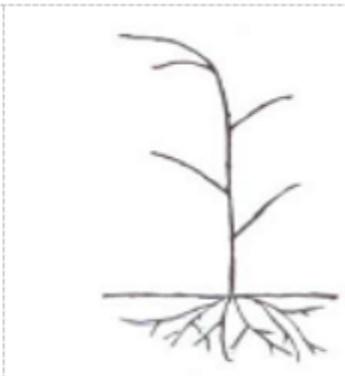
Ad. 5: Leaf: type

	
three leaflets	many leaflets
1	2

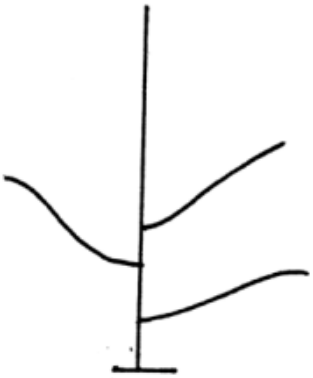
Ad. 6: Leaf: shape of leaflet

			
narrow oval	medium oval	broad oval	Split leaf shape
1	2	3	4

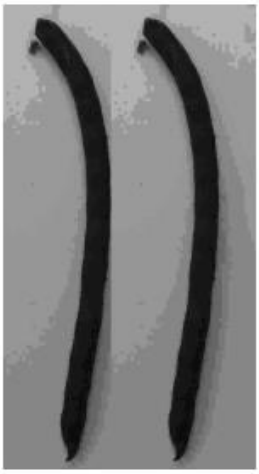
Ad. 14: Plant: habit

		
upright	semi sprawl	sprawl
1	2	3

Ad. 17: Plant: branches at angles to main stem

		
small	medium	large
1	3	5

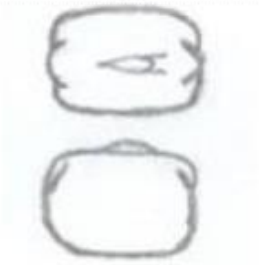
Ad. 23: Plant: pod-shattering

		
straight	falciform	claw
1	2	3

Ad. 25: Pod: color

		
yellowish white	brown	black
1	2	3

Ad. 28: Seed: shape

		
sphere	cylindrical	physical
1	2	3

Ad. 29: Seed: ground color of testa

				
green	yellow	blue	brown	
1	2	3	4	

8.3 *Decimal Code for the Growth Stages of Vigna radiate*

Code	Growth stages	General Description
10	Seedling stage	Opposite simple leaves fully spread
20	Initial flowering period	Ten percent of the plants in the plot have their first flower
30	Full-bloom stage	Seventy percent of the plants in the plot are flowering
40	Maturity stage	In the cell, 50% of the pods are mature, the pods are mature and the seeds are hard
50	Ull ripe stage	More than 90% of the pods in the cell were mature, the pods showed mature color, and the beans hardened

9. Literature

2013: Guidelines for the Conduct of Test for Distinctness, Uniformity and Stability of Mungbean (Vigna radiata L. Wilczek). Chinese standard, in Chinese.

Lixia Wang, et al. 2014: Adaptability and Phenotypic Variation of Agronomic Traits in Mungbean Core Collection under Different Environments in China. Beijing, CN.

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	*Vigna radiata* (L.) R. Wilczek
1.2	Common name	Mung Bean

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 variety)

(……..……..…) 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 Other [ ]

(Please provide details)

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 (1)	**Hypocotyl: anthocyanin coloration**		
	absent	Zhonglv1 C3408	1 [ ]
	present	Dayingelv 925 C5786	9 [ ]
5.2 (6)	**Leaf: shape of leaflet**		
	split leaf shape		
	narrow oval		1 [ ]
	medium oval		2 [ ]
	broad oval		3 [ ]
5.3 (8)	**Leaf: anthocyanin coloration at the base of leaflets**		
	absent	Zhonglv1 C3408	1 [ ]
	present	Dayingelv 925 C5786	9 [ ]
5.4 (9)	**Petiole: intensity of anthocyanin coloration**		
	absent or very weak		1 [ ]
	weak		2 [ ]
	strong		3 [ ]
5.5 (10)	**Flowers: color of corolla**		
	light yellow		1 [ ]
	medium yellow		2 [ ]
	yellow with purple		3 [ ]
5.6 (13)	**Mature period**		
	very early		1 [ ]
	early	Baolv 942 C5636	3 [ ]
	medium	Zhonglv1 C3408	5 [ ]
	late	Lvdou C2969	7 [ ]
	very late		9 [ ]

	Characteristics	Example Varieties	Note
5.7 (14)	**Plant: habit**		
	upright	Zhonglv1 C3408	1 [ ]
	semi sprawl	Yinggelvdou C1547	2 [ ]
	sprawl	Lanlvdou C4157	3 [ ]
5.8 (15)	**Pod: length**		
	very short	Gaaoyangxiaolvdou C0229	1 [ ]
	short	Dayanglvdou C0385	3 [ ]
	medium	Zhonglv1 C3408	5 [ ]
	tall	Quyangxiaolvdou C1819	7 [ ]
	very tall	Hulvdou C1431	9 [ ]
5.9 (23)	**Plant: pod-shattering**		
	straight		1 [ ]
	falciform		2 [ ]
	claw		3 [ ]
5.10 (25)	**Pod: color**		
	yellowish white	Hulvdou C2185	1 [ ]
	brown	Dengxianlvdou C2737	2 [ ]
	black	Zhonglv1 C3408	3 [ ]
5.11 (27)	**Seed: weight**		
	small		1 [ ]
	medium		3 [ ]
	large		5 [ ]
5.12 (29)	**Seed: ground color of testa**		
	green	Zhonglv1 C3408	1 [ ]
	yellow	Suhuang 1 C6402	2 [ ]
	blue	Lanlvdou C4157	3 [ ]
	brown	Hulvdou C2185	4 [ ]
	black	Heizhengzhu C5503	5 [ ]
5.13 (31)	**Seed: seed coat luster**		
	absent		1 [ ]
	present		9 [ ]

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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			

Comments:

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[#]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

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

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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.

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

[End of document]