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|  | GINKGO  UPOV Code(s): GINKG\_BIL  *Ginkgo biloba* L. | \* |

GUIDELINESFOR THE CONDUCT OF TESTS  
FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by an expert from China

to be considered by the

Technical Working Party for Ornamental Plants and Forest Trees at its fifty-seventh session,

to be held in Roelofarendsveen, Kingdom of the Netherlands,

from 2025-03-31 to 2025-04-03

Disclaimer: this document does not represent UPOV policies or guidance

Alternative Names:\*

| *Botanical name* | *English* | *French* | *German* | *Spanish* |
| --- | --- | --- | --- | --- |
| *Ginkgo biloba* L. | Ginkgo, Maidenhair | Arbre aux quarante écus, Ginkgo | Ginkgo | Gingco, Ginkgo |

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.

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# Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Ginkgo biloba* L..

# 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 vegetatively propagated plants.

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

5 plants.

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.

# Method of Examination

## 3.1  Number of Growing Cycles

3.1.1 The minimum duration of tests should normally be a single growing cycle.

3.1.2 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 5 plants.

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

## 3.5  Additional Tests

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

# 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 or Parts of Plants to be Examined

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

In the case of observations of parts taken from single plants, the number of parts to be taken from each of the plants should be 2.

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

## 4.3  Stability

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

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

# 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 blade: shape (characteristic 8)

(b) Leaf blade: variegation (characteristic 11)

(c) Leaf blade: main color (characteristic 12)

(d) Only varieties with fan-shaped leaves: Leaf blade: shape of leaf base (characteristic 16)

(e) Nut:  symmetry (characteristic 26)

(f) Only varieties with Nut: symmetry: present: Nut: shape in lateral view (characteristic 27)

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”.

# 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)-(x) See Explanations on the Table of Characteristics in Chapter 8.1

7 Growth stage key (if applicable) See Explanations on the Table of Characteristics in Chapter 8.3

# Table of Characteristics/Tableau des caracteres/Merkmalstabelle/Tabla de caracteres

|  | | English | | français | | deutsch | español | Example Varieties  Exemples  Beispielssorten  Variedades ejemplo | Note/  Nota |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1.** |  | **QL** | **VG** |  |  |  |  |  |  |
|  | | **Plant: sex** | |  | |  |  |  |  |
| female | |  | |  |  | Jia Fo Zhi, Variegata | 1 |
| male | |  | |  |  | Fairmount, Kui Wu | 2 |
| **2.** |  | **QN** | **MG/VG** |  | **(a)** |  |  |  |  |
|  | | **Plant: height** | |  | |  |  |  |  |
| short | |  | |  |  | Mariken | 1 |
| short to medium | |  | |  |  | Barabits Nana | 2 |
| medium | |  | |  |  | Heksenbezem Leiden | 3 |
| medium to tall | |  | |  |  | Beijing Gold | 4 |
| tall | |  | |  |  | Menhir | 5 |
| **3.** |  | **PQ** | **VG** | **(+)** | **(a)** |  |  |  |  |
|  | | **Plant: shape of crown** | |  | |  |  |  |  |
| conic | |  | |  |  | Menhir | 1 |
| cylindric | |  | |  |  | Tian Zhu | 2 |
| ovoid | |  | |  |  |  | 3 |
| globose | |  | |  |  | Globosa | 4 |
| obloid | |  | |  |  |  | 5 |
| semi-ellipsoid | |  | |  |  |  | 6 |
| **4.** |  | **PQ** | **VG** | **(+)** | **(a)** |  |  |  |  |
|  | | **Plant: growth habit** | |  | |  |  |  |  |
| fastigiate | |  | |  |  |  | 1 |
| upright | |  | |  |  | Tian Zhu | 2 |
| semi-upright | |  | |  |  | Piedmont Pillar | 3 |
| spreading | |  | |  |  | Horizontalis | 4 |
| drooping | |  | |  |  | Mayfield | 5 |
| weeping | |  | |  |  | Pendula | 6 |
| **5.** |  | **QN** | **MG/VG** | **(+)** |  |  |  |  |  |
|  | | **Branch: length of internode** | |  | |  |  |  |  |
| short | |  | |  |  | Heksenbezem Leiden | 1 |
| short to medium | |  | |  |  |  | 2 |
| medium | |  | |  |  | Fairmount | 3 |
| medium to long | |  | |  |  |  | 4 |
| long | |  | |  |  | Dong Ting Huang | 5 |
| **6.** | **(\*)** | **PQ** | **VG** |  | **(b)** |  |  |  |  |
|  | | **Young leaf blade: main color** | |  | |  |  |  |  |
| green | |  | |  |  | Fastigiata | 1 |
| yellow green | |  | |  |  |  | 2 |
| light yellow | |  | |  |  | Californian Sunset | 3 |
| medium yellow | |  | |  |  | Wan Nian Jin | 4 |
| **7.** | **(\*)** | **QL** | **VG** | **(+)** | **(c)** |  |  |  |  |
|  | | **Leaf: attitude** | |  | |  |  |  |  |
| upwards | |  | |  |  | Fastigiata | 1 |
| downwards | |  | |  |  | Chui Ye, Saratoga | 2 |
| **8.** | **(\*)** | **PQ** | **VG** | **(+)** | **(c)** |  |  |  |  |
|  | | **Leaf blade: shape** | |  | |  |  |  |  |
| only fan-shaped | |  | |  |  | Fastigiata | 1 |
| only funnel-shaped | |  | |  |  | Tubifolia | 2 |
| fan-shaped and terete | |  | |  |  | Santa Cruz | 3 |
| fan-shaped and acicular | |  | |  |  | Song Zhen | 4 |
| **9.** |  | **QN** | **MG/MS** | **(+)** | **(c)** |  |  |  |  |
|  | | **Only varieties with fan-shaped leaves: Leaf blade: length** | |  | |  |  |  |  |
| very short | |  | |  |  | Zhai Guan | 1 |
| very short to short | |  | |  |  |  | 2 |
| short | |  | |  |  | Wen Bi | 3 |
| short to medium | |  | |  |  |  | 4 |
| medium | |  | |  |  | Shan Nong Guo 2 | 5 |
| medium to long | |  | |  |  |  | 6 |
| long | |  | |  |  | Heksenbezem Leiden | 7 |
| long to very long | |  | |  |  |  | 8 |
| very long | |  | |  |  | Shan Nong F-2 | 9 |
| **10.** |  | **QN** | **MG/MS** | **(+)** | **(c)** |  |  |  |  |
|  | | **Only varieties with fan-shaped leaves: Leaf blade: width** | |  | |  |  |  |  |
| very narrow | |  | |  |  | Zhai Guan | 1 |
| very narrow to narrow | |  | |  |  |  | 2 |
| narrow | |  | |  |  | Wen Bi | 3 |
| narrow to medium | |  | |  |  |  | 4 |
| medium | |  | |  |  | Shan Nong Guo 2 | 5 |
| medium to broad | |  | |  |  |  | 6 |
| broad | |  | |  |  | Heksenbezem Leiden | 7 |
| broad to very broad | |  | |  |  |  | 8 |
| very broad | |  | |  |  | Shan Nong F-2 | 9 |
| **11.** | **(\*)** | **QL** | **VG** |  | **(c)** |  |  |  |  |
|  | | **Leaf blade: variegation** | |  | |  |  |  |  |
| absent | |  | |  |  | Blagon | 1 |
| present | |  | |  |  | Santa Cruz | 9 |
| **12.** | **(\*)** | **PQ** | **VG** |  | **(b),(c)** |  |  |  |  |
|  | | **Leaf blade: main color** | |  | |  |  |  |  |
| whitish | |  | |  |  |  | 1 |
| medium green | |  | |  |  | Fastigiata | 2 |
| dark green | |  | |  |  | Jade Butterflies, Shan Nong Yin 1 | 3 |
| yellow green | |  | |  |  | Saratoga | 4 |
| yellow | |  | |  |  | Wan Nian Jin | 5 |
| **13.** |  | **PQ** | **VG** |  | **(b),(c)** |  |  |  |  |
|  | | **Only varieties with Leaf blade: variegation: present: Leaf blade: secondary color** | |  | |  |  |  |  |
| white | |  | |  |  | Snow Cloud, Vanilla Swirl | 1 |
| yellow green | |  | |  |  | Majestic Butterfly | 2 |
| yellow | |  | |  |  | Tai Shan Ban Ye | 3 |
| **14.** |  | **PQ** | **VG** |  | **(b),(c)** |  |  |  |  |
|  | | **Only varieties with Leaf blade: variegation: present: Leaf blade: distribution of secondary color** | |  | |  |  |  |  |
| irregularly speckled | |  | |  |  |  | 1 |
| marginal | |  | |  |  | Snow Cloud | 2 |
| irregularly striped | |  | |  |  | Jade Butterflies | 3 |
| **15.** |  | **QL** | **VG** |  | **(b),(c)** |  |  |  |  |
|  | | **Only varieties with Leaf blade: variegation: present: Leaf blade: tertiary color** | |  | |  |  |  |  |
| absent | |  | |  |  | Ban Ye | 1 |
| present | |  | |  |  | Majestic Butterfly | 9 |
| **16.** | **(\*)** | **PQ** | **VG** | **(+)** | **(c)** |  |  |  |  |
|  | | **Only varieties with fan-shaped leaves: Leaf blade: shape of leaf base** | |  | |  |  |  |  |
| cuneate | |  | |  |  | Shan Nong Yin 2 | 1 |
| truncate | |  | |  |  | Piedmont Pillar | 2 |
| cordate | |  | |  |  | Horizontalis | 3 |
| **17.** | **(\*)** | **QL** | **VG** | **(+)** | **(c)** |  |  |  |  |
|  | | **Only varieties with fan-shaped leaves: Leaf blade: number of incisions** | |  | |  |  |  |  |
| none | |  | |  |  |  | 1 |
| one | |  | |  |  | Jade Butterflies | 2 |
| five | |  | |  |  | Wen Bi | 3 |
| **18.** | **(\*)** | **QN** | **VG** | **(+)** | **(c)** |  |  |  |  |
|  | | **Only varieties with fan-shaped leaves: Leaf blade: depth of central incision** | |  | |  |  |  |  |
| shallow | |  | |  |  | Autumn Gold | 1 |
| shallow to medium | |  | |  |  | Princeton Sentry | 2 |
| medium | |  | |  |  | Princeton Gold | 3 |
| medium to deep | |  | |  |  | Fairmount | 4 |
| deep | |  | |  |  | Wen Bi | 5 |
| **19.** |  | **QN** | **VG** | **(+)** | **(c)** |  |  |  |  |
|  | | **Only varieties with fan-shaped leaves: Leaf blade: depth of marginal serrations** | |  | |  |  |  |  |
| shallow | |  | |  |  | Da Hai He | 1 |
| medium | |  | |  |  | Zhai Guan | 2 |
| deep | |  | |  |  | Saratoga | 3 |
| **20.** | **(\*)** | **QL** | **VG** | **(+)** | **(d)** |  |  |  |  |
|  | | **Fruit: position** | |  | |  |  |  |  |
| only branchlets | |  | |  |  | Bian Fo Zhi, Tremonia | 1 |
| branchlets and leaves | |  | |  |  | Epiphylla, Ye Zi | 9 |
| **21.** | **(\*)** | **PQ** | **VG** |  | **(d)** |  |  |  |  |
|  | | **Fruit: color** | |  | |  |  |  |  |
| yellow green | |  | |  |  | Yu Xiang | 1 |
| yellow | |  | |  |  | Tan 107 | 2 |
| orange | |  | |  |  | Qi Xing Guo | 3 |
| black | |  | |  |  | Qi Xing Hai He | 4 |
| **22.** |  | **QN** | **VG** | **(+)** | **(d)** |  |  |  |  |
|  | | **Fruit: intensity of bloom** | |  | |  |  |  |  |
| weak | |  | |  |  | Nan Lin Guo 1 | 1 |
| medium | |  | |  |  | Qi Xing Guo | 2 |
| strong | |  | |  |  | Dong Ting Huang | 3 |
| **23.** |  | **QN** | **MG/MS/VG** | **(+)** | **(d)** |  |  |  |  |
|  | | **Nut: length** | |  | |  |  |  |  |
| short | |  | |  |  | Shan Nong Guo 1 | 1 |
| short to medium | |  | |  |  |  | 2 |
| medium | |  | |  |  | Shan Nong Guo 5 | 3 |
| medium to long | |  | |  |  |  | 4 |
| long | |  | |  |  | Bian Fo Zhi | 5 |
| **24.** |  | **QN** | **MG/MS/VG** | **(+)** | **(d)** |  |  |  |  |
|  | | **Nut: width in lateral view** | |  | |  |  |  |  |
| narrow | |  | |  |  | Jia Fo Zhi | 1 |
| narrow to medium | |  | |  |  |  | 2 |
| medium | |  | |  |  | Ma Ling 5 | 3 |
| medium to broad | |  | |  |  |  | 4 |
| broad | |  | |  |  | An Yin 1 | 5 |
| **25.** |  | **QN** | **MG/MS/VG** | **(+)** | **(d)** |  |  |  |  |
|  | | **Nut: thickness** | |  | |  |  |  |  |
| thin | |  | |  |  | Chang Nuo Bai Guo | 1 |
| thin to medium | |  | |  |  |  | 2 |
| medium | |  | |  |  | Shan Nong Guo 5 | 3 |
| medium to thick | |  | |  |  |  | 4 |
| thick | |  | |  |  | An Yin 1 | 5 |
| **26.** |  | **QL** | **VG** | **(+)** | **(d)** |  |  |  |  |
|  | | **Nut:  symmetry** | |  | |  |  |  |  |
| absent | |  | |  |  | Xin Yu | 1 |
| present | |  | |  |  | Shan Nong Guo 1 | 9 |
| **27.** | **(\*)** | **PQ** | **VG** | **(+)** | **(d)** |  |  |  |  |
|  | | **Only varieties with Nut: symmetry: present: Nut: shape in lateral view** | |  | |  |  |  |  |
| ovate | |  | |  |  | Jin Bing Wei | 1 |
| oblate | |  | |  |  |  | 2 |
| circular | |  | |  |  | Shan Nong Guo 1 | 3 |
| medium elliptic | |  | |  |  | Hai Yang Huang | 4 |
| narrow elliptic | |  | |  |  | Jia Fo Zhi | 5 |
| obovate | |  | |  |  | Shan Nong Guo 2 | 6 |
| **28.** | **(\*)** | **PQ** | **VG** | **(+)** | **(d)** |  |  |  |  |
|  | | **Nut: shape of base** | |  | |  |  |  |  |
| cuneate | |  | |  |  |  | 1 |
| convex | |  | |  |  |  | 2 |
| truncate | |  | |  |  |  | 3 |
| concave | |  | |  |  |  | 4 |
| **29.** |  | **PQ** | **VG** | **(+)** | **(d)** |  |  |  |  |
|  | | **Nut: shape of apex** | |  | |  |  |  |  |
| obtuse | |  | |  |  | Jin Zhui Zi | 1 |
| rounded | |  | |  |  | Hai Yang Huang | 2 |
| truncate | |  | |  |  | Qi Xing Guo | 3 |
| retuse | |  | |  |  | Chang Nuo Bai Guo | 4 |
| **30.** |  | **QL** | **VG** |  | **(d)** |  |  |  |  |
|  | | **Nut: ridge** | |  | |  |  |  |  |
| absent | |  | |  |  |  | 1 |
| present | |  | |  |  |  | 9 |
| **31.** |  | **QN** | **VG** | **(+)** | **(d)** |  |  |  |  |
|  | | **Nut: position of ridge** | |  | |  |  |  |  |
| distal third | |  | |  |  | Gan Lan Guo | 1 |
| distal half | |  | |  |  | Hai Yang Huang | 2 |
| distal two thirds | |  | |  |  |  | 3 |
| entire | |  | |  |  | Qi Xing Guo | 4 |
| **32.** |  | **QN** | **VG** | **(+)** | **(d)** |  |  |  |  |
|  | | **Nut: width of ridge** | |  | |  |  |  |  |
| narrow | |  | |  |  |  | 1 |
| medium | |  | |  |  |  | 2 |
| broad | |  | |  |  |  | 3 |
| **33.** |  | **QL** | **VG** | **(+)** | **(d)** |  |  |  |  |
|  | | **Nut: pitting on surface** | |  | |  |  |  |  |
| absent | |  | |  |  | Shan Nong Guo 5 | 1 |
| present | |  | |  |  | Qi Xing Guo | 9 |
| **34.** | **(\*)** | **PQ** | **VG** | **(+)** | **(d)** |  |  |  |  |
|  | | **Kernel: color** | |  | |  |  |  |  |
| yellow white | |  | |  |  | Gui 048 | 1 |
| yellow green | |  | |  |  | Shen Nong 1 | 2 |
| green | |  | |  |  |  | 3 |
| **35.** | **(\*)** | **QN** | **MG/VG** | **(+)** |  |  |  |  |  |
|  | | **Time of beginning of leaf color change** | |  | |  |  |  |  |
| early | |  | |  |  | Xin Yu | 1 |
| medium | |  | |  |  | Shan Nong Guo 1 | 2 |
| late | |  | |  |  | Nan Lin Guo 5 | 3 |
| **36.** | **(\*)** | **QN** | **MG/VG** | **(+)** |  |  |  |  |  |
|  | | **Time of beginning of fruit maturity** | |  | |  |  |  |  |
| early | |  | |  |  | Xin Yu | 1 |
| early to medium | |  | |  |  |  | 2 |
| medium | |  | |  |  | Shan Nong Guo 1 | 3 |
| medium to late | |  | |  |  |  | 4 |
| late | |  | |  |  | Nan Lin Guo 5 | 5 |

# Explanations on the Table of Characteristics

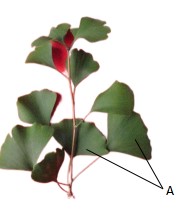
## 8.1  Explanations covering several characteristics

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

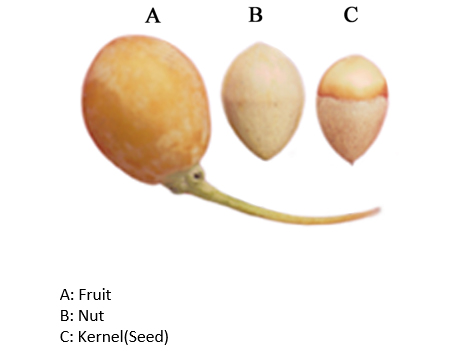
(a) Observations should be made on the whole mature plant in the dormant period.

(b) The main color is the color with the largest surface area. The secondary color is the color with the second largest surface area. In cases where the areas of the main and secondary color are too similar to reliably decide which color has the largest area, the darker color is considered to be the main color. The tertiary color is the color with the third largest surface area. In cases where the areas of the secondary and tertiary color are too similar to reliably decide which color has the largest area, the darker color is considered to be the secondary color.

(c) Observations should be made on the 3rd or 4th fully developed leaf from the base of the current year branches in summer.  
  
A: 3rd ~ 4th leaves from the base of the current year branches.

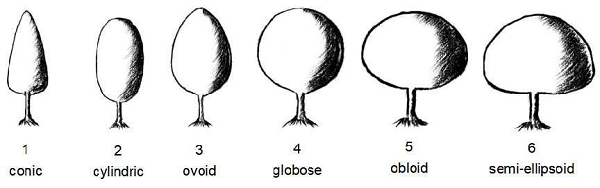


(d) Observations should be made on the fully developed fruits in autumn.

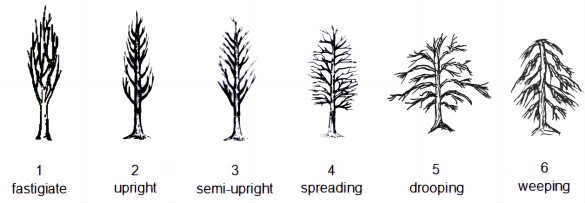


## 8.2  Explanations for individual characteristics

Ad. 3: Plant: shape of crown

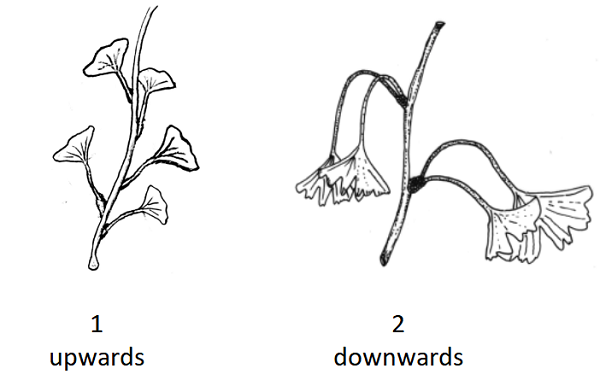
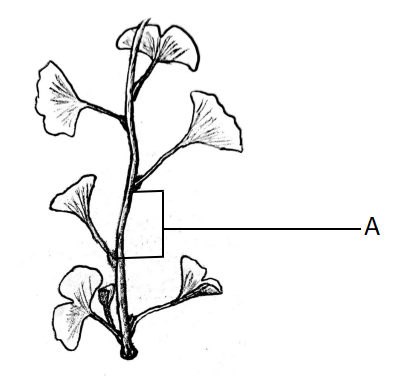


Ad. 4: Plant: growth habit

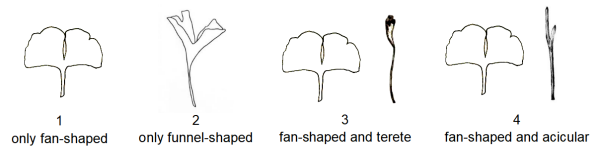


Ad. 5: Branch: length of internode

Observations should be made on the one-year-old long branches when they cease growth in autumn.  
  
A: Internode  
  
Ad. 7: Leaf: attitude

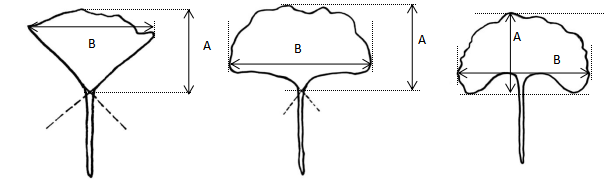


Ad. 8: Leaf blade: shape



Ad. 9: Only varieties with fan-shaped leaves: Leaf blade: length

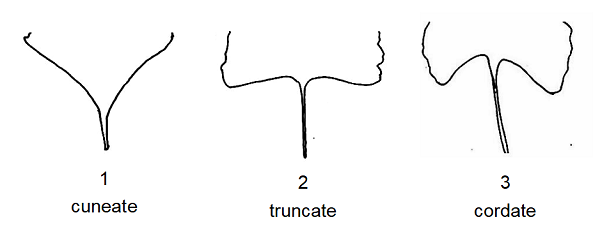
A= Leaf blade: length  
B= Leaf blade: width



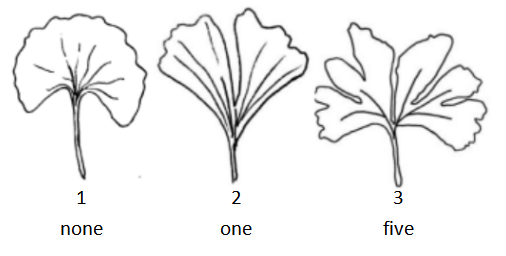
Ad. 10: Only varieties with fan-shaped leaves: Leaf blade: width

See Ad. 9.

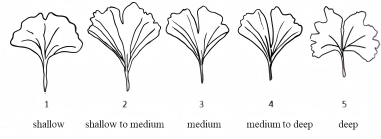
Ad. 16: Only varieties with fan-shaped leaves: Leaf blade: shape of leaf base



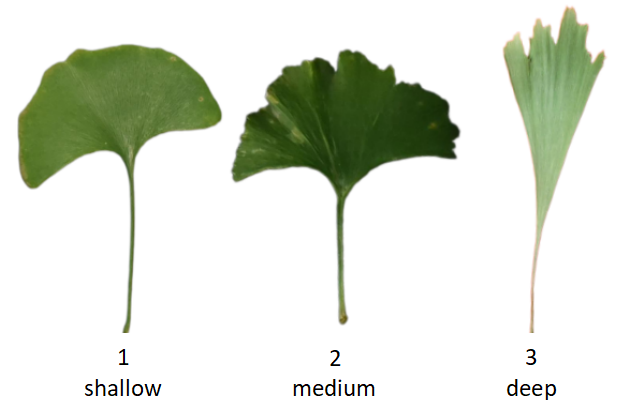
Ad. 17: Only varieties with fan-shaped leaves: Leaf blade: number of incisions



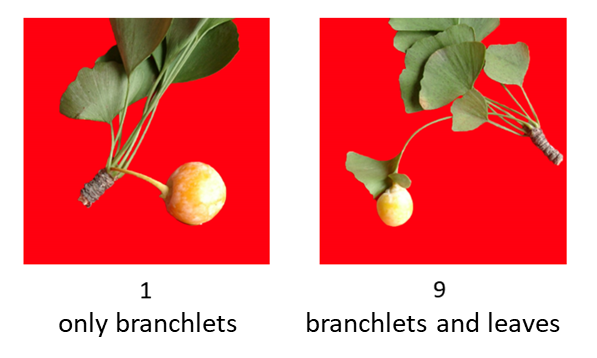
Ad. 18: Only varieties with fan-shaped leaves: Leaf blade: depth of central incision



Ad. 19: Only varieties with fan-shaped leaves: Leaf blade: depth of marginal serrations



Ad. 20: Fruit: position

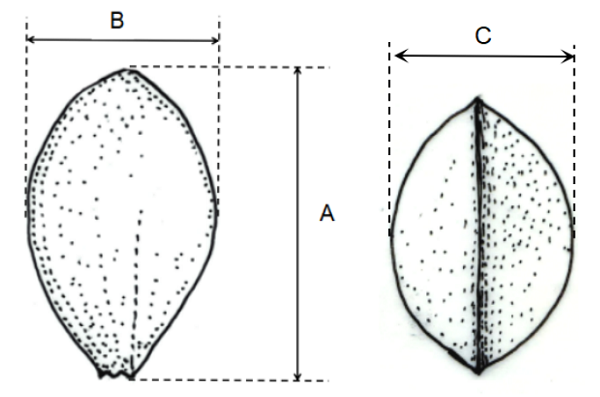


Ad. 22: Fruit: intensity of bloom

The bloom is the waxy layer that can be removed by rubbing.

Ad. 23: Nut: length

A=Nut: length  
B=Nut: width in lateral view  
C=Nut: thickness



Ad. 24: Nut: width in lateral view

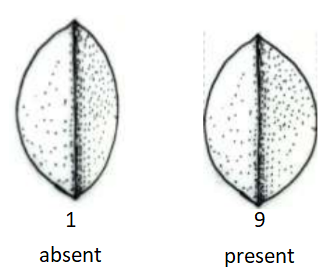
See Ad. 23.  
  
Observations should be made on the broadest part (including the ridge).

Ad. 25: Nut: thickness

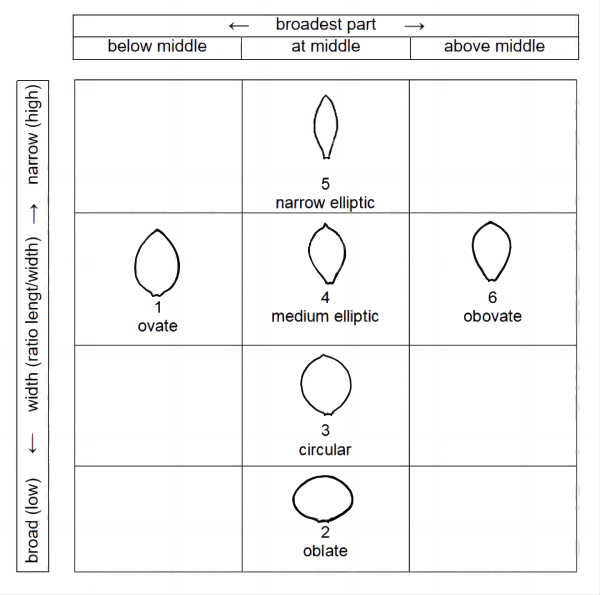
See Ad. 23.

Ad. 26: Nut:  symmetry

Observations should be made facing the suture.



Ad. 27: Only varieties with Nut: symmetry: present: Nut: shape in lateral view



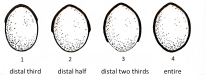
Ad. 28: Nut: shape of base



Ad. 29: Nut: shape of apex



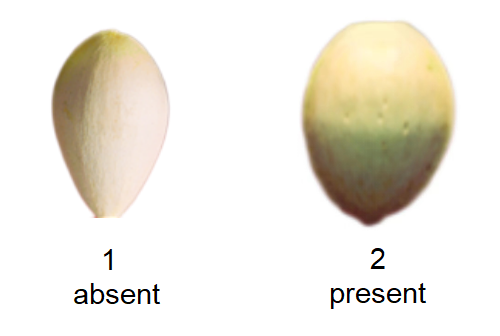
Ad. 31: Nut: position of ridge



Ad. 32: Nut: width of ridge



Ad. 33: Nut: pitting on surface



Ad. 34: Kernel: color

Observations should be made on the half-cut kernels.

Ad. 35: Time of beginning of leaf color change

The time of beginning of leaf color change is determined when 30% of leaves have changed color in autumn.

Ad. 36: Time of beginning of fruit maturity

The time of beginning of fruits mature is determined when 30% of fruits have changed color.

# Literature

|  |
| --- |
| 郭善基. 中国果树志. 银杏卷[M].北京: 中国林业出版社,1993. (Guo Shanji. Chinese Fruiter Records[M]. Beijing: China Forestry Publishing House, 1993.) 曹福亮. 中国银杏志[M].北京: 中国林业出版社,2007. (Cao Fuliang. Chinese Ginkgo Records[M]. Beijing: China Forestry Publishing House, 2007.) 邢世岩. 银杏种质资源评价与良种选育（上册）[M].北京:  中国环境科学出版社, 2004. (Xing Shiyan. Evaluation of Ginkgo Germplasm Resources and Selection of Improved Varieties (Volume I)[M]. Beijing: China Environmental Science Press, 2004.) 邢世岩. 银杏种质资源评价与良种选育（下册）[M].北京: 中国环境科学出版社, 2004. (Xing Shiyan. Evaluation of Ginkgo Germplasm Resources and Selection of Improved Varieties (Volume II)[M]. Beijing: China Environmental Science Press, 2004.) 曹福亮. 中国银杏品种图鉴[M].北京: 科学出版社，2011. (Cao Fuliang. An Illustrated Monograph of Ginkgo biloba L.Cultivars in China[M]. Beijing: Science Press, 2011.) 邢世岩. 中国银杏种质资源[M].北京: 中国林业出版社,2013. (Xing Shiyan. Ginkgo Germplasm Resources in China[M]. Beijing: China Forestry Publishing House, 2013.) 邢世岩, 姜岳忠, 吴德军, 李文清, 解孝满. 银杏观赏种质资源评述[J]. 山东林业科技, 2013, 43(04): 96-100. (Xing Shiyan, Jiang Yuezhong, Wu Dejun, et al. Review on Ginkgo Ornanmental Germplasm Resources[J]. Shandong Forestry Science and Technology, 2013, 43(04): 96-100.) 李士美, 崔希峰, 王成生, 邢世岩, 岳进成, 孙宝玉, 许连科. 银杏观赏品种的叶片形态特性[J]. 林业科技开发, 2006(02): 33-36. (Li Shimei, Cui Xifeng, Wang Chengsheng, et al. The Morphological Diversity of Leaf of Ornamental Ginkgo Cultivars[J]. Journal of Forestry Engineering, 2006, 20(2): 33-36.) 邢世岩.《银杏种质资源描述规范和数据标准》[M].北京: 中国林业出版社，2014. (Xing Shiyan. Descriptors and Date Standards for Germplasm Resources of Ginkgo biloba[M]. Beijing: China Forestry Publishing House, 2014.) LY/T 3000-2018, 植物新品种特异性、一致性、稳定性测试指南 银杏[S]. (LY/T 3000-2018, Guidelines of the Conduct of Tests for Distinctness,uniformity and Stability-Ginkgo（Ginkgo biloba L.)[S].) 王迎, 宋承东, 郭善基, 张泰岩, 黄迎山. 银杏新品种‘松针’[J].林业科学,2009,45(09):174. (Wang Ying, Song Chengdong, Guo Shanji, et al. A New Variety of Ginkgo biloba ‘songzhen’[J]. Scientia Silvae Sinicae, 2009, 45(09): 174.) Soma, S., 2003: A trial to Get the Ginkgo Tree Bearing Leaves with Microsporangia or Ovule on the Leaf. Annual Report of the Faculty of Education Bunkyo University, 37:pp11~pp16. |

# 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 | | | |
| 1.1.1 Botanical name | *Ginkgo biloba* L. | |  |
|  |  | |  |
| 1.1.2 Common name | Ginkgo, Maidenhair | |  |
| 2. Applicant | | | |
| Name |  | |  |
|  |  | |  |
| Address |  | |  |
|  |  | |  |
| Telephone No. |  | |  |
|  |  | |  |
| Fax No. |  | |  |
|  |  | |  |
| E-mail address |  | |  |
|  |  | |  |
| Breeder (if different from  applicant) |  | |  |
|  |  | |  |

|  |  |  |  |
| --- | --- | --- | --- |
| TECHNICAL QUESTIONNAIRE | Page {x} of {y} | Reference Number: | |
|  | | | |
| 3. Proposed denomination and breeder's reference | | | |
| Proposed denomination  (if available) |  | |  |
|  |  | |  |
| Breeder's reference |  | |  |

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| --- | --- | --- |
| 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 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) |

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

|  |
| --- |
| 4.2 Method of propagating the variety  4.2.1 Seed-propagated varieties  (a) Other (please provide details) [ ]  4.2.2 Vegetative propagation  (a) Cuttings [ ]  (b) Budding or grafting [ ]  (c) Other (state method) [ ]  4.2.3 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)** | **Plant: sex** | |  | |  |
|  | female | | Jia Fo Zhi, Variegata | | 1 [ ] |
|  | male | | Fairmount, Kui Wu | | 2 [ ] |
| **5.2**  **(6)** | **Young leaf blade: main color** | |  | |  |
|  | green | | Fastigiata | | 1 [ ] |
|  | yellow green | |  | | 2 [ ] |
|  | light yellow | | Californian Sunset | | 3 [ ] |
|  | medium yellow | | Wan Nian Jin | | 4 [ ] |
| **5.3**  **(7)** | **Leaf: attitude** | |  | |  |
|  | upwards | | Fastigiata | | 1 [ ] |
|  | downwards | | Chui Ye, Saratoga | | 2 [ ] |
| **5.4**  **(8)** | **Leaf blade: shape** | |  | |  |
|  | only fan-shaped | | Fastigiata | | 1 [ ] |
|  | only funnel-shaped | | Tubifolia | | 2 [ ] |
|  | fan-shaped and terete | | Santa Cruz | | 3 [ ] |
|  | fan-shaped and acicular | | Song Zhen | | 4 [ ] |
| **5.5**  **(9)** | **Only varieties with fan-shaped leaves: Leaf blade: length** | |  | |  |
|  | very short | | Zhai Guan | | 1 [ ] |
|  | very short to short | |  | | 2 [ ] |
|  | short | | Wen Bi | | 3 [ ] |
|  | short to medium | |  | | 4 [ ] |
|  | medium | | Shan Nong Guo 2 | | 5 [ ] |
|  | medium to long | |  | | 6 [ ] |
|  | long | | Heksenbezem Leiden | | 7 [ ] |
|  | long to very long | |  | | 8 [ ] |
|  | very long | | Shan Nong F-2 | | 9 [ ] |
|  |  | |  | |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| TECHNICAL QUESTIONNAIRE | | Page {x} of {y} | | Reference Number: | |
|  | |  | |  | |
|  | Characteristics | | Example Varieties | | Note |
| **5.6**  **(10)** | **Only varieties with fan-shaped leaves: Leaf blade: width** | |  | |  |
|  | very narrow | | Zhai Guan | | 1 [ ] |
|  | very narrow to narrow | |  | | 2 [ ] |
|  | narrow | | Wen Bi | | 3 [ ] |
|  | narrow to medium | |  | | 4 [ ] |
|  | medium | | Shan Nong Guo 2 | | 5 [ ] |
|  | medium to broad | |  | | 6 [ ] |
|  | broad | | Heksenbezem Leiden | | 7 [ ] |
|  | broad to very broad | |  | | 8 [ ] |
|  | very broad | | Shan Nong F-2 | | 9 [ ] |
| **5.7**  **(11)** | **Leaf blade: variegation** | |  | |  |
|  | absent | | Blagon | | 1 [ ] |
|  | present | | Santa Cruz | | 9 [ ] |
| **5.8**  **(12)** | **Leaf blade: main color** | |  | |  |
|  | whitish | |  | | 1 [ ] |
|  | medium green | | Fastigiata | | 2 [ ] |
|  | dark green | | Jade Butterflies, Shan Nong Yin 1 | | 3 [ ] |
|  | yellow green | | Saratoga | | 4 [ ] |
|  | yellow | | Wan Nian Jin | | 5 [ ] |
| **5.9**  **(16)** | **Only varieties with fan-shaped leaves: Leaf blade: shape of leaf base** | |  | |  |
|  | cuneate | | Shan Nong Yin 2 | | 1 [ ] |
|  | truncate | | Piedmont Pillar | | 2 [ ] |
|  | cordate | | Horizontalis | | 3 [ ] |
| **5.10**  **(17)** | **Only varieties with fan-shaped leaves: Leaf blade: number of incisions** | |  | |  |
|  | none | |  | | 1 [ ] |
|  | one | | Jade Butterflies | | 2 [ ] |
|  | five | | Wen Bi | | 3 [ ] |
|  |  | |  | |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| TECHNICAL QUESTIONNAIRE | | Page {x} of {y} | | Reference Number: | |
|  | |  | |  | |
|  | Characteristics | | Example Varieties | | Note |
| **5.11**  **(18)** | **Only varieties with fan-shaped leaves: Leaf blade: depth of central incision** | |  | |  |
|  | shallow | | Autumn Gold | | 1 [ ] |
|  | shallow to medium | | Princeton Sentry | | 2 [ ] |
|  | medium | | Princeton Gold | | 3 [ ] |
|  | medium to deep | | Fairmount | | 4 [ ] |
|  | deep | | Wen Bi | | 5 [ ] |
| **5.12**  **(20)** | **Fruit: position** | |  | |  |
|  | only branchlets | | Bian Fo Zhi, Tremonia | | 1 [ ] |
|  | branchlets and leaves | | Epiphylla, Ye Zi | | 9 [ ] |
| **5.13**  **(21)** | **Fruit: color** | |  | |  |
|  | yellow green | | Yu Xiang | | 1 [ ] |
|  | yellow | | Tan 107 | | 2 [ ] |
|  | orange | | Qi Xing Guo | | 3 [ ] |
|  | black | | Qi Xing Hai He | | 4 [ ] |
| **5.14**  **(34)** | **Kernel: color** | |  | |  |
|  | yellow white | | Gui 048 | | 1 [ ] |
|  | yellow green | | Shen Nong 1 | | 2 [ ] |
|  | green | |  | | 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: variegation* | | *absent* | | *present* |
|  | | | | | | |
|  | | | | | | |
|  | | | | | | |
| Comments | | | | | | |

|  |  |  |
| --- | --- | --- |
| TECHNICAL QUESTIONNAIRE | Page {x} of {y} | Reference Number: |
|  | | | |
| #7. Additional information which may help in the examination of the variety  7.1 In addition to the information provided in sections 5 and 6, are there any additional characteristics which may help to distinguish the variety?  Yes [ ] No [ ]  (If yes, please provide details)  7.2 Are there any special conditions for growing the variety or conducting the examination?  Yes [ ] No [ ]  (If yes, please provide details)  7.3 Other information  A representative color photograph of the variety displaying its main distinguishing feature(s), should accompany the Technical Questionnaire. The photograph will provide a visual illustration of the candidate variety which supplements the information provided in the Technical Questionnaire.  The key points to consider when taking a photograph of the candidate variety are:  • Indication of the date and geographic location  • Correct labeling (breeder’s reference)  • Good quality printed photograph (minimum 10 cm x 15 cm) and/or sufficient resolution electronic format version (minimum 960 x 1280 pixels)”  Further guidance on providing photographs with the Technical Questionnaire is available in document TGP/7 "Development of Test Guidelines", Guidance Note 35 (http://www.upov.int/tgp/en/).  [The link provided may be deleted by members of the Union when developing authorities’ own test guidelines.]  Is your candidate variety a dwarf type?  Yes [  ]  No [  ] | | | |

|  |  |  |  |
| --- | --- | --- | --- |
| TECHNICAL QUESTIONNAIRE | Page {x} of {y} | Reference Number: | |
|  | | | |
| 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”.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  9.3 Has the plant material to be examined been tested for the presence of virus or other pathogens?  Yes [ ]  (please provide details as specified by the Authority)  No [ ] | | | |
| 10. I hereby declare that, to the best of my knowledge, the information provided in this form is correct: | | | |
| Applicant’s name |  | | |
| Signature |  | Date |  |
|  | [End of document] | | |