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TG/106/5(proj.1)
**ORIGINAL:** English
**DATE:** 2017-05-19

# INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

**LEAF BEET, SWISS CHARD**

UPOV Code(s):

BETAA_VUL_GVF

*Beta vulgaris* L. ssp. *vulgaris* var. *flavescens* DC. f. *crispa*

**GUIDELINES**

**FOR THE CONDUCT OF TESTS**

**FOR DISTINCTNESS, UNIFORMITY AND STABILITY**

*prepared by experts from France*
*to be considered by the*
*Technical Working Party for Vegetables*
*at its fifty-first session, to be held in Roelofarendsveen, Netherlands,*
*from 2017-07-03 to 2017-07-07*

*Disclaimer: this document does not represent UPOV policies or guidance*

Alternative names:*

| *Botanical name* | *English* | *French* | *German* | *Spanish* |
|---|---|---|---|---|
| *Beta vulgaris* L. ssp. *vulgaris* var. *flavescens* DC. f. *crispa*, *Beta vulgaris* L. ssp. *vulgaris* var. *cicla* (L.) Ulrich, *Beta vulgaris* L. ssp. *vulgaris* var. *vulgaris* | Leaf Beet, Mangel, Spinach Beet, Swiss Chard | Bette à côtes, Bette commune, Poirée | Mangold, Stielmangold | Acelga, Acelga cardo |

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

## ASSOCIATED DOCUMENTS

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

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

TABLE OF CONTENTS PAGE

## 1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Beta vulgaris* L. ssp. *vulgaris* var. *flavescens* DC. f. *crispa* or *Beta vulgaris* L. var. *cicla* L. (Ulrich).

## 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 seeds.

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

100g or 6600 seeds at least.

In the case of seed, the seed should meet the minimum requirements for germination, species and analytical purity, health and moisture content, specified by the competent authority.

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

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.

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.

### *3.2 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 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.

3.4.2 Each test should be designed to result in a total of at least 100 plants IN THE OPENFIELD or 60 plants IN THE GREENHOUSE OR PLASTIC TUNNEL, which should be divided between 2 or more 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 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 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 for cross-pollinated varieties should be according to the recommendations for cross-pollinated varieties in the General Introduction.

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.

4.2.5 The uniformity of a variety may be determined on the basis of off-types for some characteristics and standard deviations for other characteristics.

It can be assessed by considering the overall of variation, observed across all the individual plants, to determine whether it is similar to comparable varieties. In this approach, relative tolerance limits for the level of variation are set by comparison with comparable varieties, or types, already known ("standard deviations approach"). The standard deviations approach means that a candidate variety should not be significantly less uniform than the comparable varieties.

For the assessment of uniformity of open-pollinated varieties, relative uniformity standards should be used.

For the assessment of uniformity by counting of the number of off-types, a population standard of 2% for cross-pollinated varieties and of 1% for hybrid varieties with an acceptance probability of at least 95% should be applied.

In the case of a sample size of 60 plants in a greenhouse or a plastic tunnel, the maximum number of off-types allowed would be 2 for hybrid varieties whereas for cross-pollinated varieties it would be 3.
In the case of a sample size of 100 plants in openfield, the maximum number of off-types allowed would be 3 for hybrid varieties whereas for cross-pollinated varieties it would be 5.

4.2.5 An additional tolerance of off-types can be accepted for clear cases of plants obviously resulting from the selfing of a parent line in single-cross hybrids.

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

## 5. Grouping of Varieties and Organization of the Growing Trial

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

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

5.3 The following have been agreed as useful grouping characteristics:

(a) Leaf blade: color (characteristic 6)
(b) Leaf blade: intensity of green color (characteristic 7)
(c) Leaf blade: intensity of purple color (characteristic 8)
(d) Midrib: width (characteristic 14)
(e) Midrib: color (characteristic 16)

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*

| | English | français | deutsch | español | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>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)

7 Not applicable

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

| | | English | français | deutsch | español | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|---|---|---|---|---|---|---|---|
| **1.** | | **QL VS** | | | | | |
| | | **Seedling: hypocotyl color** | | | | | |
| | | white | | | | Verte à carde blanche | 1 |
| | | yellow | | | | Pirol | 2 |
| | | reddish | | | | Ruby Red, Fantasy | 3 |
| | | green | | | | Groene Gewone, Lisca verde da taglio | 4 |
| **2.** | **(*)** | **QN VG** | **(+) (a)** | | | | |
| | | **Leaf: length** | | | | | |
| | | short | | | | Groene Gewone, Verde de penca blanca ancha | 3 |
| | | medium | | | | Blonde à carde blanche | 5 |
| | | long | | | | Verte à carde blanche, Paros | 7 |
| **3.** | **(*)** | **QN VG** | **(a)** | | | | |
| | | **Leaf: attitude** | | | | | |
| | | erect | | | | Paros | 1 |
| | | semi-erect | | | | Blonde à carde blanche | 3 |
| | | prostrate | | | | Groene Gewone | 5 |
| **4.** | **(*)** | **QN VG** | **(+) (a)** | | | | |
| | | **Leaf blade: length** | | | | | |
| | | short | | | | Groene Gewone, Amarilla de Lyon | 3 |
| | | medium | | | | Verde de Niza | 5 |
| | | long | | | | Blonde à carde blanche, Paros | 7 |

| | | English | | français | | deutsch | español | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|---|---|---|---|---|---|---|---|---|---|
| **5.** | **(*)** | **QN** | **VG** | **(+)** | **(a)** | | | | |
| | | **Leaf blade: width** | | | | | | | |
| | | narrow | | | | | | Groene Gewone, Lucullus | 3 |
| | | medium | | | | | | Paros | 5 |
| | | broad | | | | | | Verte à carde blanche | 7 |
| **6.** | **(*)** | **QL** | **VG** | | **(a)** | | | | |
| | | **Leaf blade: color** | | | | | | | |
| | | green | | | | | | Red Chard | 1 |
| | | purple | | | | | | Mangenta, Firebird | 2 |
| **7.** | **(*)** | **QN** | **VG** | | **(a)** | | | | |
| | | **Leaf blade: intensity of green color** | | | | | | | |
| | | very light | | | | | | Amarilla de Lyon | 1 |
| | | light | | | | | | Blonde à carde blanche | 3 |
| | | medium | | | | | | Verde de Niza | 5 |
| | | dark | | | | | | Verde de penca blanca ancha | 7 |
| | | very dark | | | | | | Verde de penca blancha larga | 9 |
| **8.** | **(*)** | **QN** | **VG** | **(+)** | **(a)** | | | | |
| | | **Leaf blade: intensity of purple color** | | | | | | | |
| | | light | | | | | | | 3 |
| | | medium | | | | | | Mangenta | 5 |
| | | dark | | | | | | Firebird | 7 |

| | | English | français | deutsch | español | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|---|---|---|---|---|---|---|---|
| **9.** | | **QN VG** | **(a)** | | | | |
| | | **Leaf blade: reflexing of the margin** | | | | | |
| | | absent of very weak | | | | Groene Gewone | 1 |
| | | weak | | | | Blonde à carde blanche | 3 |
| | | medium | | | | | 5 |
| | | strong | | | | Lucullus | 7 |
| **10.** | | **QN VG** | **(a)** | | | | |
| | | **Leaf blade: glossiness of upper side** | | | | | |
| | | weak | | | | Groene Gewone | 3 |
| | | medium | | | | | 5 |
| | | strong | | | | Blonde à carde blanche | 7 |
| **11.** | **(*)** | **QN VG** | **(a)** | | | | |
| | | **Leaf blade: blistering** | | | | | |
| | | weak | | | | Groene Gewone | 3 |
| | | medium | | | | Blonde à carde blanche, Paros | 5 |
| | | strong | | | | Lucullus | 7 |
| **12.** | | **QN VG** | **(+)** **(a)** | | | | |
| | | **<u>Leaf blade: Green leaf blade only</u>: intensity of anthocyanin coloration** | | | | | |
| | | very weak | | | | Blonde à carde blanche | 1 |
| | | weak | | | | | 3 |
| | | medium | | | | Rhubarb Chard | 5 |
| | | strong | | | | Charlie | 7 |
| | | very strong | | | | | 9 |

| | | English | français | deutsch | español | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|---|---|---|---|---|---|---|---|
| **13.** | | **QN VS** | **(+) (a)** | | | | |
| | | **Midrib: length free of leaf blade** | | | | | |
| | | very short | | | | | 1 |
| | | short | | | | Lucullus | 3 |
| | | medium | | | | Paros | 5 |
| | | long | | | | Blonde à carde blanche, Verde de penca blancha larga | 7 |
| | | very long | | | | Groene Gewone | 9 |
| **14.** | **(*)** | **QN VS** | **(+) (a)** | | | | |
| | | **Midrib: width** | | | | | |
| | | very narrow | | | | Groene Gewone | 1 |
| | | narrow | | | | Verde de Niza, Rhubarb Chard | 3 |
| | | medium | | | | Lucullus, Verde de penca blancha larga | 5 |
| | | broad | | | | Amarilla de Lyon | 7 |
| | | very broad | | | | Verde de penca blanca ancha, Paros | 9 |
| **15.** | | **QN VS** | **(+) (a)** | | | | |
| | | **Midrib: curvature of inner side in cross section** | | | | | |
| | | absent or very weak | | | | | 1 |
| | | weak | | | | Groene Gewone | 3 |
| | | medium | | | | Lucullus | 5 |
| | | strong | | | | Blonde à carde blanche | 7 |

| | | English | français | deutsch | español | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|---|---|---|---|---|---|---|---|
| **16.** | **(*)** | **PQ VG** | **(a)** | | | | |
| | | **Midrib: color** | | | | | |
| | | white | | | | Blonde à carde blanche | 1 |
| | | yellow | | | | Bright Yellow | 2 |
| | | green | | | | Groene Gewone | 3 |
| | | red | | | | Rhubarb Chard, Ruby Red | 4 |
| | | purple | | | | Mangenta, Pink Passion, Fantasy | 5 |
| **17.** | **(*)** | **QN VG** | **(a)** | | | | |
| | | **Midrib color: excluding white midrib: color intensity** | | | | | |
| | | weak | | | | | 3 |
| | | medium | | | | | 5 |
| | | strong | | | | | 7 |
| **18.** | | **QN VG** | | | | | |
| | | **Time of beginning of bolting** | | | | | |
| | | early | | | | Paros, Verde de Niza | 3 |
| | | medium | | | | Verde de penca blanca ancha | 5 |
| | | late | | | | Amarilla de Lyon | 7 |

## 8. Explanations on the Table of Characteristics

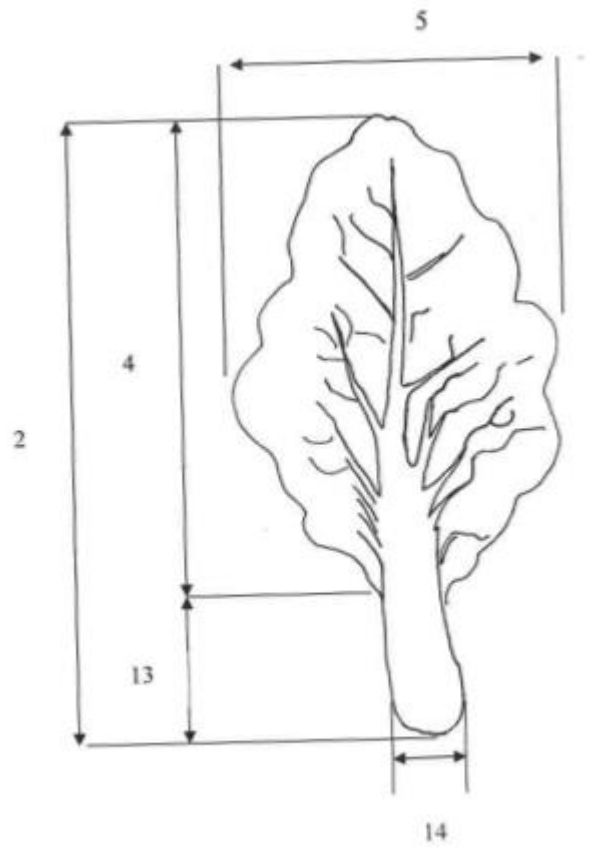
### *8.1 Explanations covering several characteristics*

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

(a) All observations on the foliage, the leaf blade, and the midrib should be made when the foliage has reached its maximum height.

### *8.2 Explanations for individual characteristics*

Ad. 2: Leaf: length




Ad. 4: Leaf blade: length

See Ad. 2

Ad. 5: Leaf blade: width

See Ad. 2

Ad. 8: Leaf blade: intensity of purple color

| 3 | 5 | 7 |
|---|---|---|
| light | medium | dark |

Ad. 12: Leaf blade: Green leaf blade only: intensity of anthocyanin coloration

| 1 | 3 | 5 | 7 |
|---|---|---|---|
| very light | light | medium | dark |

Ad. 13: Midrib: length free of leaf blade

See Ad. 2

Ad. 14: Midrib: width

See Ad. 2

Ad. 15: Midrib: curvature of inner side in cross section

| 1 | 5 | 7 |
|---|---|---|
| absent of very weak | medium | strong |

## 9. Literature

No specific litereture

10. Technical Questionnaire

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

| | Application date:<br>(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 | *Beta vulgaris* L. ssp. *vulgaris* var. *flavescens* DC. f. *crispa* |
| 1.2 Common name | Leaf Beet, Mangel, Spinach Beet, Swiss Chard |

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 [ ]

(b) partially known cross [ ]

(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 (2)** | **Leaf: length** | | |
| | short | Groene Gewone, Verde de penca blanca ancha | 3 [ ] |
| | medium | Blonde à carde blanche | 5 [ ] |
| | long | Paros, Verte à carde blanche | 7 [ ] |
| **5.2 (3)** | **Leaf: attitude** | | |
| | erect | Paros | 1 [ ] |
| | semi-erect | Blonde à carde blanche | 3 [ ] |
| | prostrate | Groene Gewone | 5 [ ] |
| **5.3 (4)** | **Leaf blade: length** | | |
| | short | Amarilla de Lyon, Groene Gewone | 3 [ ] |
| | medium | Verde de Niza | 5 [ ] |
| | long | Blonde à carde blanche, Paros | 7 [ ] |
| **5.4 (5)** | **Leaf blade: width** | | |
| | narrow | Groene Gewone, Lucullus | 3 [ ] |
| | medium | Paros | 5 [ ] |
| | broad | Verte à carde blanche | 7 [ ] |
| **5.5 (6)** | **Leaf blade: color** | | |
| | green | Red Chard | 1 [ ] |
| | purple | Firebird, Mangenta | 2 [ ] |
| **5.6 (7)** | **Leaf blade: intensity of green color** | | |
| | very light | Amarilla de Lyon | 1 [ ] |
| | light | Blonde à carde blanche | 3 [ ] |
| | medium | Verde de Niza | 5 [ ] |
| | dark | Verde de penca blanca ancha | 7 [ ] |
| | very dark | Verde de penca blancha larga | 9 [ ] |

| | Characteristics | Example Varieties | Note |
|---|---|---|---|
| **5.7 (8)** | **Leaf blade: intensity of purple color** | | |
| | light | | 3 [ ] |
| | medium | Mangenta | 5 [ ] |
| | dark | Firebird | 7 [ ] |
| **5.8 (14)** | **Midrib: width** | | |
| | very narrow | Groene Gewone | 1 [ ] |
| | narrow | Rhubarb Chard, Verde de Niza | 3 [ ] |
| | medium | Lucullus, Verde de penca blancha larga | 5 [ ] |
| | broad | Amarilla de Lyon | 7 [ ] |
| | very broad | Paros, Verde de penca blanca ancha | 9 [ ] |
| **5.9 (16)** | **Midrib: color** | | |
| | white | Blonde à carde blanche | 1 [ ] |
| | yellow | Bright Yellow | 2 [ ] |
| | green | Groene Gewone | 3 [ ] |
| | red | Rhubarb Chard, Ruby Red | 4 [ ] |
| | purple | Fantasy, Mangenta, Pink Passion | 5 [ ] |

| 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* | *Midrib: color* | *red* | *purple* |
| | | | |
| | | | |
| | | | |

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.]

# 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: |
|---|---|---|

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]