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|  | **LETTUCE**  UPOV Code: LACTU\_SAT  *Lactuca sativa* L. | [[1]](#footnote-1)\* |

**GUIDELINES**

**FOR THE CONDUCT OF TESTS**

**FOR DISTINCTNESS, UNIFORMITY AND STABILITY**

prepared by experts from The Netherlands

to be considered by the

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

Alternative Names:\*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Botanical name* | *English* | *French* | *German* | *Spanish* |
| *Lactuca sativa* L. | Lettuce | Laitue | Salat | Lechuga |

|  |
| --- |
| 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 *Lactuca sativa* 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 seed.

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

15,000 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.

# Method of Examination

## 3.1 Number of Growing Cycles

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

## 3.2 Testing Place

Tests are normally conducted at one place. In the case of tests conducted at more than one place, guidance is provided in TGP/9 “Examining Distinctness”.

## 3.3 Conditions for Conducting the Examination

The tests should be carried out under conditions ensuring satisfactory growth for the expression of the relevant characteristics of the variety and for the conduct of the examination.

## 3.4 Test Design

3.4.1 Each test should be designed to result in a total of at least 60 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.

# 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.

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 / 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 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 For the assessment of uniformity, a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 60 plants, 2 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 seed 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 In the first place, the collection should be divided according to growth types and subtypes in Table 1.

In cases of doubt to which growth (sub-)type a variety belongs to, it should be tested in all relevant growth (sub-)types.

5.4 The following have been agreed as useful grouping characteristics:

(a) Seed: color (characteristic 1)

(b) Leaf: anthocyanin coloration (characteristic 11)

(c) Time of beginning of bolting under long day conditions (characteristic 30)

(d) Resistance to downy mildew (*Bremia lactucae*): Isolate Bl: 16 (characteristic 32.1)

5.5 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 In the case of qualitative and pseudo‑qualitative characteristics (see Chapter 6.3), all relevant states of expression are presented in the characteristic. However, in the case of quantitative characteristics with 5 or more states, an abbreviated scale may be used to minimize the size of the Table of Characteristics. For example, in the case of a quantitative characteristic with 9 states, the presentation of states of expression in the Test Guidelines may be abbreviated as follows:

|  |  |
| --- | --- |
| State | Note |
| small | 3 |
| medium | 5 |
| large | 7 |

However, it should be noted that all of the following 9 states of expression exist to describe varieties and should be used as appropriate:

|  |  |
| --- | --- |
| State | Note |
| very small | 1 |
| very small to small | 2 |
| small | 3 |
| small to medium | 4 |
| medium | 5 |
| medium to large | 6 |
| large | 7 |
| large to very large | 8 |
| very large | 9 |

6.2.3 Further explanation of the presentation of states of expression and notes is provided in document TGP/7 “Development of Test Guidelines”.

## 6.3 Types of Expression

An explanation of the types of expression of characteristics (qualitative, quantitative and pseudo‑qualitative) is provided in the General Introduction.

## 6.4 Example Varieties

Where appropriate, example varieties are provided to clarify the states of expression of each characteristic.

## 6.5 Legend

(\*) Asterisked characteristic – see Chapter 6.1.2

QL Qualitative characteristic – see Chapter 6.3

QN Quantitative characteristic – see Chapter 6.3

PQ Pseudo-qualitative characteristic – see Chapter 6.3

MG, MS, VG, VS – see Chapter 4.1.5

(a)-(b) See Explanations on the Table of Characteristics in Chapter 8.2.

(+) See Explanations on the Table of Characteristics in Chapter 8.3.

Table 1.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Plant: growth type** | **Plant: growth sub-type** | **Example varieties** | **Plant: head formation (3)** | **Only cutting lettuce varieties: Plant: number of leaves (4)** | **Leaf: division (6)** | **Leaf: thickness (18)** | **Leaf: undulation of margin (21)** | **Leaf: venation (24)** | **Only varieties with closed head: Head: shape in longitudinal section (28)** |
| Butterhead lettuce | **-** | Clarion, Maikönig | closed head | - | entire | thin to thick | absent to weak | not flabellate | circular or transverse broad elliptic |
| Crisp lettuce | Iceberg | Great Lakes 659, Roxette, Saladin, Vanguard 75 | closed head | - | entire | thick | absent to medium | flabellate | circular or transverse broad elliptic |
|  | heading Batavia | Curtis, Masaida, Visyon | closed head | - | entire | medium to thick | weak to strong | flabellate | broad elliptic, circular or transverse broad elliptic |
|  | open heading Batavia | Aquarel, Funnice | open head | - | entire | medium to thick | medium to very strong | flabellate | - |
| Cos lettuce | **-** | Actarus,  Blonde maraîchère, Pinokkio | open head or closed head | - | entire | medium to thick | absent to weak | not flabellate | narrow elliptic |
| Grasse lettuce | **-** | Craquerelle du Midi, Sucrine, Xanadu | open head or closed head | - | entire | medium to thick | absent to weak | not flabellate | broad elliptic, circular or transverse broad elliptic |
| Cutting lettuce | Frisée d'Amérique | Bijou, Faradia, Grand Rapids | no head | small or medium | entire | thin | absent to very strong | flabellate or not flabellate or semi | - |
|  | Oakleaf | Catalogna, Kipling, Muraï, Salad Bowl | no head | small or medium | divided | thin | absent to weak | flabellate or not flabellate or semi | - |
|  | Frillice | Frilett | no head | small or medium | entire | thick | weak to strong | flabellate | - |
|  | Lollo | Lollo rossa, Revolution | no head | small or medium | entire | thin | strong to very strong | flabellate | - |
|  | Divided | Curletta, Duplex, Jadigon, Rodagio | no head | small or medium | divided | thin | weak to very strong | flabellate | - |
|  | Multileaf | Felluca, Sartre, Xeres | no head | large | entire or divided | thin to medium | absent to very strong | flabellate or not flabellate or semi | - |
| Novita lettuce | - | Norvick | open head | - | entire | thin to medium | very weak to medium | flabellate | circular or transverse broad elliptic |
| Stem lettuce | - | Celtuce | no head | - | entire | thin to medium | absent to weak | not flabellate | - |

Section 8.1 provides illustrations for the growth (sub-)types.

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

|  |  | English | français | deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1. (\*) | VG | Seed: color |  |  |  |  |  |
| **QL** |  | white |  |  |  | Verpia | 1 |
|  |  | yellow |  |  |  | Durango | 2 |
|  |  | black |  |  |  | Kagraner Sommer 2 | 3 |
| ~~2. (\*) (+)~~ | ~~VG~~ | ~~Seedling: anthocyanin coloration~~ |  |  |  |  |  |
| **~~QL~~** |  | ~~absent~~ |  |  |  | ~~Verpia~~ | ~~1~~ |
|  |  | ~~present~~ |  |  |  | ~~Pirat~~ | ~~9~~ |
| ~~3.~~ | ~~VG~~ | ~~Seedling: size of cotyledon (fully developed)~~ |  |  |  |  |  |
| **~~QN~~** |  | ~~small~~ |  |  |  | ~~Romance~~ | ~~3~~ |
|  |  | ~~medium~~ |  |  |  | ~~Expresse~~ | ~~5~~ |
|  |  | ~~large~~ |  |  |  | ~~Verpia~~ | ~~7~~ |
| ~~4.~~ | ~~VG~~ | ~~Seedling: shape of cotyledon~~ |  |  |  |  |  |
| **~~QN~~** |  | ~~narrow elliptic~~ |  |  |  | ~~Calmar~~ | ~~3~~ |
|  |  | ~~medium elliptic~~ |  |  |  | ~~Frisette~~ | ~~5~~ |
|  |  | ~~broad elliptic~~ |  |  |  | ~~Fiorella, Sunrise~~ | ~~7~~ |
| ~~5.~~ | ~~VG~~ | ~~Leaf: attitude at 10‑12 leaf stage~~ |  |  |  |  |  |
| **~~QN~~** |  | ~~erect~~ |  |  |  | ~~Baby Star, Romance~~ | ~~1~~ |
|  |  | ~~semi-erect~~ |  |  |  | ~~Great Lakes 118, Soraya~~ | ~~3~~ |
|  |  | ~~prostrate~~ |  |  |  | ~~Unicum, Vanguard 75~~ | ~~5~~ |
| 2.  (old 7) (\*) | VG | Plant: diameter |  |  |  |  |  |
| QN | (a) | very small |  |  |  | ~~Pavane,~~ Tom Thumb | 1 |
|  |  | small |  |  |  | ~~Bastion,~~  Gotte à graine blanche | 3 |
|  |  | medium |  |  |  | Clarion, Verpia | 5 |
|  |  | large |  |  |  | Great Lakes 659~~, Musette~~ | 7 |
|  |  | very large |  |  |  | El Toro~~, Yuma~~ | 9 |
| 3.  (old 8) (\*) (+) | VG | Plant: head formation |  |  |  |  |  |
| PQ | (a) | no head |  |  |  | Blonde à couper améliorée, Lollo rossa, Redair | 1 |
|  |  | open head |  |  |  | Actarus, Aquarel ~~Manfred, Monet~~ | 2 |
|  |  | closed head |  |  |  | Clarion, Roxette, ~~Kelvin, Sunrise~~ | 3 |
| 4.  (+) | VG/MS | Only cutting lettuce varieties: Plant: number of leaves |  |  |  |  |  |
| QN | (a) | small |  |  |  | Lollo rossa | 1 |
|  |  | medium |  |  |  | Salad Bowl | 2 |
|  |  | large |  |  |  | Felluca, Sartre, Xeres | 3 |
| 5.  (old 15)  (+) | VG | Leaf: attitude |  |  |  |  |  |
| **QN** | (b) | erect |  |  |  | Feria, Pinokkio~~, Riva~~ | 1 |
|  |  | semi-erect |  |  |  | ~~Amelia~~, Faradia, Sartre, ~~Toronto~~ | 3 |
|  |  | horizontal |  |  |  | ~~Chambery,~~ Divina | 5 |
| 6.   (+) | VG | Leaf: division |  |  |  |  |  |
| **QL** | **(b)** | entire |  |  |  | Fiorella, Lollo rossa, ~~Sunrise~~ | 1 |
|  |  | ~~lobed~~ |  |  |  | ~~A couper à feuille de chêne blonde à graine noire, Salad Bowl~~ | ~~2~~ |
|  |  | divided |  |  |  | Jadigon, Kipling, Lagon, ~~Monet~~ | 2 |
| 7.  (+) | VG | Only varieties with divided leaves: Leaf: number of divisions |  |  |  |  |  |
| QN | (b) | very small |  |  |  |  | 1 |
|  |  | small |  |  |  | Curletta, Rodagio | 3 |
|  |  | medium |  |  |  | Ezabel, Jadigon | 5 |
|  |  | large |  |  |  | Expedition, Multired 54 | 7 |
|  |  | very large |  |  |  | Excite, Ezfrill, Telex | 9 |
| 8.  (+) | VG | Only oakleaf sub-types: Leaf: width of lobes |  |  |  |  |  |
| QN | (b) | narrow |  |  |  | Kibrille, Rougini | 3 |
|  |  | medium |  |  |  | Bandolin, Ribaï | 5 |
|  |  | broad |  |  |  | Horix, Starix, Vizir | 7 |
| 9.  (old 16) ~~(\*)~~ (+) | VG | Only varieties with entire leaves: Leaf: shape |  |  |  |  |  |
| PQ | (b) | narrow elliptic |  |  |  | ~~Riva~~, Verte maraîchère | 1 |
|  |  | medium elliptic |  |  |  | ~~Angela~~, Xanadu | 2 |
|  |  | broad elliptic |  |  |  | Amadeus, ~~Amelia~~ | 3 |
|  |  | circular |  |  |  | ~~Elsa, Sunrise,~~ Verpia | 4 |
|  |  | transverse broad elliptic |  |  |  | Commodore, Fiorella | 5 |
|  |  | transverse narrow elliptic |  |  |  | ~~Elvira, Madison,~~ Stylist | 6 |
|  |  | obovate |  |  |  | Raisa, ~~Toronto~~ | 7 |
|  |  | broad obtrullate |  |  |  | ~~Delicato~~, ~~Monet~~ | 8 |
|  |  | triangular |  |  |  | Amboni, ~~Deer Tongue~~ | 9 |
| ~~17.~~ | ~~VG~~ | ~~Leaf: shape of tip~~ |  |  |  |  |  |
| **~~PQ~~** | **~~(b)~~** | ~~acute~~ |  |  |  | ~~Celtuce, Deer Tongue, Karola, Tempra~~ | ~~1~~ |
|  |  | ~~obtuse~~ |  |  |  | ~~Chicon des Charentes, Grise maraîchère~~ | ~~2~~ |
|  |  | ~~rounded~~ |  |  |  | ~~Blonde Maraîchère, Maserati~~ | ~~3~~ |
| 10.  (+) | VG | Only varieties with entire leaves: Leaf: cross section |  |  |  |  |  |
| QN | (b) | convex |  |  |  | Tiago | 1 |
|  |  | flat |  |  |  | Clarion, Lollo rossa | 3 |
|  |  | concave |  |  |  | Sunstar | 5 |
| 11.  (old 20) (\*) (+) | VG | Leaf: anthocyanin coloration |  |  |  |  |  |
| **QL** | (b) | absent |  |  |  | Clarion, ~~Fiorella, Sunrise~~ | 1 |
|  |  | present |  |  |  | ~~Commodore~~, Lollo rossa, ~~Pirat~~ | 9 |
| **12.  (+)** | **VG** | **Leaf: area covered with anthocyanin coloration** |  |  |  |  |  |
| **QN** | **(b)** | very small |  |  |  | Steirer Krauthauptel | 1 |
|  |  | small |  |  |  | Diablo | 3 |
|  |  | medium |  |  |  | Luana | 5 |
|  |  | large |  |  |  | Merveille des quatre saisons | 7 |
|  |  | very large |  |  |  | Bijou, Revolution | 9 |
| 13.   (+) | VG | Leaf: hue of anthocyanin coloration |  |  |  |  |  |
| **PQ** | (b) | reddish |  |  |  | Lollo rossa | 1 |
|  |  | brownish |  |  |  | Brauner Trotzkopf, Luana | 2 |
|  |  | purplish |  |  |  | Faradia, Iride | 3 |
| 14.  (old 21) (\*) (+) | VG | Leaf: intensity of anthocyanin coloration |  |  |  |  |  |
| QN | (b) | very weak |  |  |  | ~~Chicon de Charentes, Muranta, Rumina~~ | 1 |
|  |  | weak |  |  |  | Du bon jardinier | 3 |
|  |  | medium |  |  |  | Lollo rossa, Luana, ~~Trocadéro à graine noire~~ | 5 |
|  |  | strong |  |  |  | ~~Amandine,~~  Merveille des quatre saisons | 7 |
|  |  | very strong |  |  |  | ~~Little Leprechaun,~~ Iride, Revolution | 9 |
| ~~22.~~ | ~~VG~~ | ~~Leaf: distribution of anthocyanin~~ |  |  |  |  |  |
| ~~QL~~ | ~~(b)~~ | ~~localised~~ |  |  |  | ~~Muranta, Rumina~~ | ~~1~~ |
|  |  | ~~entire~~ |  |  |  | ~~Delicato, Liberty~~ | ~~2~~ |
| ~~23.~~ | ~~VG~~ | ~~Leaf: kind of anthocyanin distribution~~ |  |  |  |  |  |
| ~~QL~~ | ~~(b)~~ | ~~diffused only~~ |  |  |  | ~~Amandine, Pirat, Sanguine~~ | ~~1~~ |
|  |  | ~~in spots only~~ |  |  |  | ~~Passion blonde à graine blanche, Unicum~~ | ~~2~~ |
|  |  | ~~diffused and in spots~~ |  |  |  | ~~Lovina, Rougette du Midi~~ | ~~3~~ |
| 15.  (old 18) (\*) (+) | VG | Leaf: hue of green color |  |  |  |  |  |
| **PQ** | (b) | absent |  |  |  | ~~Donatello,~~ Verpia | 1 |
|  |  | yellowish |  |  |  | Dorée de printemps | 2 |
|  |  | greyish |  |  |  | Celtuce, Du bon jardinier | 3 |
| 16.  (old 19) (\*) (+) | VG | Leaf: intensity of green color |  |  |  |  |  |
| **QN** | **(b)** | very light |  |  |  |  | 1 |
|  |  | light |  |  |  | Blonde maraîchère, Lollo | 3 |
|  |  | medium |  |  |  | Aquarel, Clarion | 5 |
|  |  | dark |  |  |  | Expedition, Verpia | 7 |
|  |  | very dark |  |  |  | Pascal, Verdetrix | 9 |
| 17.  (old 24) | VG | Leaf: glossiness of upper side |  |  |  |  |  |
| **QN** | **(b)** | absent or very weak |  |  |  | Divina, Du bon jardinier | 1 |
|  |  | weak |  |  |  | Duplex, ~~Elsa,~~ Fiorella, Sartre | 3 |
|  |  | medium |  |  |  | ~~Feria~~, Funnice, ~~Sunrise~~ | 5 |
|  |  | strong |  |  |  | ~~Ibis~~, Noisette, Redair | 7 |
|  |  | very strong |  |  |  | Bijou | 9 |
| 18.  (old 14) | VG | Leaf: thickness |  |  |  |  |  |
| **QN** | **(b)** | thin |  |  |  | Bijou, Lollo rossa, Raisa, ~~Royal Red~~ | 3 |
|  |  | medium |  |  |  | ~~Dustin~~, Curtis, Expedition, ~~Sunrise~~ | 5 |
|  |  | thick |  |  |  | Frilett,  ~~Frisée de Beauregard,~~ Roxette | 7 |
| 19.  (old 25) (\*) | VG | Leaf: blistering |  |  |  |  |  |
| **QN** | **(b)** | absent or very weak |  |  |  | ~~Donia, Frillblond,~~ Duplex, Sartre | 1 |
|  |  | weak |  |  |  | Fiorella, ~~Minas~~ | 3 |
|  |  | medium |  |  |  | Commodore, Rodagio | 5 |
|  |  | strong |  |  |  | Blonde de Paris, ~~Smile,~~ Xanadu | 7 |
|  |  | very strong |  |  |  | Blonde de Doulon, Iride, Karioka | 9 |
| 20.  (old 26) | VG | Leaf: size of blisters |  |  |  |  |  |
| **QN** | (b) | small |  |  |  | Dorée de printemps, Faradia, Rodagio | 3 |
|  |  | medium |  |  |  | Visyon~~, Dustin, Sunrise~~ | 5 |
|  |  | large |  |  |  | Fiorella, ~~Massilia~~ | 7 |
| 21.  (old 27) | VG | Leaf: undulation of margin |  |  |  |  |  |
| QN | (b) | absent or very weak |  |  |  | ~~Dustin, Manfred,~~ Tiago | 1 |
|  |  | weak |  |  |  | Commodore~~, Sunrise~~ | 3 |
|  |  | medium |  |  |  | Noisette, Pentared | 5 |
|  |  | strong |  |  |  | Calmar, Invicta | 7 |
|  |  | very strong |  |  |  | Lollo rossa~~, Madison~~ | 9 |
| ~~28.~~ | ~~VG~~ | ~~Leaf blade: incisions of margin on apical part~~ |  |  |  |  |  |
| **~~QL~~** | **~~(b)~~** | ~~absent~~ |  |  |  | ~~Verpia~~ | ~~1~~ |
|  |  | ~~present~~ |  |  |  | ~~Calmar, Gloire du Dauphiné, Unicum~~ | ~~9~~ |
| 22.  (old 28 and 29)  (+) | VG | Leaf: depth of incisions on margin of apical part |  |  |  |  |  |
| **QN** | **(b)** | absent or very shallow |  |  |  | Actarus, Clarion, Tiago | 1 |
|  |  | shallow |  |  |  | Pentared, Unicum | 3 |
|  |  | medium |  |  |  | Crispino, ~~Ithaca Great Lakes~~ | 5 |
|  |  | deep |  |  |  | Expedition, ~~Lagon, Monet~~ | 7 |
|  |  | very deep |  |  |  |  | 9 |
| 23.  (old 30)   (+) | VG | Leaf: density of incisions on margin of apical part |  |  |  |  |  |
| **QN** | (b) | very sparse |  |  |  |  | 1 |
|  |  | sparse |  |  |  | Maravilla de Verano | 3 |
|  |  | medium |  |  |  | Calmar~~, De Pierre Benite~~ | 5 |
|  |  | dense |  |  |  | Grand Rapids~~, Ithaca Great Lakes~~ | 7 |
|  |  | very dense |  |  |  | Locarno~~, Madison~~ | 9 |
| ~~31.~~ | ~~VG~~ | ~~Varieties with shallow incisions on margin on apical part only: Leaf blade: type of incisions on apical part~~ |  |  |  |  |  |
| ~~QL~~ | ~~(b)~~ | ~~sinuate~~ |  |  |  | ~~Gloire du Dauphiné~~ | ~~1~~ |
|  |  | ~~dentate~~ |  |  |  | ~~Calmar~~ | ~~2~~ |
| 24.  (old 32)   (+) | VG | Leaf: venation |  |  |  |  |  |
| **QN** | (b) | not flabellate |  |  |  | ~~Donatella,~~ Verpia, Xanadu | 1 |
|  |  | semi flabellate |  |  |  | Kibrille, Muraï | 2 |
|  |  | flabellate |  |  |  | ~~Gloire du Dauphiné,~~ Locarno, ~~Monet,~~ Roxette | 3 |
| 25.  (+) | VG | Only cutting lettuce varieties: Heart: density |  |  |  |  |  |
| QN | (a) | loose |  |  |  | Salad Bowl | 3 |
|  |  | medium |  |  |  | Curletta, Kiprien | 5 |
|  |  | dense |  |  |  | Livorno, Verdetrix | 7 |
| 26.  (old 9)  (+) | VG | Only varieties with closed head: Head: degree of overlapping of upper part of leaves |  |  |  |  |  |
| **QN** | **(a)** | very weak |  |  |  | ~~Colorado~~, Femke | 1 |
|  |  | weak |  |  |  | ~~Danilla, Novita~~, Curtis | 3 |
|  |  | medium |  |  |  | Augusta, Fiorella | 5 |
|  |  | strong |  |  |  | ~~Master, Minas,~~ Kanaria | 7 |
|  |  | very strong |  |  |  | ~~Kelvin~~, Roxette, Vanguard 75 | 9 |
| ~~10.~~ | ~~VG~~ | ~~Head: density~~ |  |  |  |  |  |
| **~~QN~~** | **~~(a)~~** | ~~loose~~ |  |  |  | ~~Nanda~~ | ~~3~~ |
|  |  | ~~medium~~ |  |  |  | ~~Blonde maraîchère~~ | ~~5~~ |
|  |  | ~~dense~~ |  |  |  | ~~Hilde II~~ | ~~7~~ |
| 27.  (old 11) | VG/MS | Only varieties with closed head: Head: size |  |  |  |  |  |
| QN | (a) | very small |  |  |  | Tom Thumb | 1 |
|  |  | small |  |  |  | ~~Bastion, Gotte à graine blanche,~~ Xanadu | 3 |
|  |  | medium |  |  |  | Aquarel, Fiorella, Soraya | 5 |
|  |  | large |  |  |  | Great Lakes 659~~, Musette~~ | 7 |
|  |  | very large |  |  |  | Blonde maraîchère | 9 |
| ~~12.~~ | ~~VG~~ | ~~Butterhead type varieties in glasshouse only: Head: closing of base~~ |  |  |  |  |  |
| **~~QN~~** | **~~(a)~~** | ~~weak~~ |  |  |  | ~~Passe Partout~~ | ~~3~~ |
|  |  | ~~medium~~ |  |  |  | ~~Carmelita~~ | ~~5~~ |
|  |  | ~~strong~~ |  |  |  | ~~Dustin, Manfred~~ | ~~7~~ |
| 28.  (old 13) (\*) (+) | VG | Only varieties with closed head: Head: shape in longitudinal section |  |  |  |  |  |
| **PQ** | **(a)** | narrow elliptic |  |  |  | Actarus,  Verte maraîchère | 1 |
|  |  | broad elliptic |  |  |  | Amadeus, Aquarel, Sucrine | 2 |
|  |  | circular |  |  |  | ~~Passe Partout,~~ Verpia | 3 |
|  |  | transverse broad elliptic |  |  |  | Ametist, Frisady | 4 |
| ~~30.~~ | ~~VG~~ | ~~Axillary sprouting~~ |  |  |  |  |  |
| **~~QN~~** |  | ~~absent or very weak~~ |  |  |  | ~~Valmaine, Xanadu~~ | ~~1~~ |
|  |  | ~~weak~~ |  |  |  | ~~Claridia, Shotter~~ | ~~3~~ |
|  |  | ~~medium~~ |  |  |  | ~~Actarus~~ | ~~5~~ |
|  |  | ~~strong~~ |  |  |  | ~~Amible, Bassoon~~ | ~~7~~ |
|  |  | ~~very strong~~ |  |  |  |  | ~~9~~ |
| 29.  (old 34) | VG/MG | Only varieties with closed head: Time of harvest maturity |  |  |  |  |  |
| QN |  | very early |  |  |  | ~~Blonde à couper améliorée,~~  Gotte jaune d'or | 1 |
|  |  | early |  |  |  | Attractie, Pantlika | 3 |
|  |  | medium |  |  |  | Clarion~~, Newton~~ | 5 |
|  |  | late |  |  |  | Blonde maraîchère, Calmar | 7 |
|  |  | very late |  |  |  | El Toro, Pinokkio | 9 |
| 30.  (old 35) (\*) (+) | VG/MG | Time of beginning of bolting under long day conditions |  |  |  |  |  |
| **QN** |  | very early |  |  |  | Blonde à couper améliorée | 1 |
|  |  | early |  |  |  | Gotte à graine blanche | 3 |
|  |  | medium |  |  |  | ~~Carélia,~~ Pantlika | 5 |
|  |  | late |  |  |  | Hilde II | 7 |
|  |  | very late |  |  |  | Erika, ~~Kinemontepas, Rex,~~ Roxette | 9 |
| ~~36.~~ | ~~VG/ MG~~ | ~~Plant: height (flowering plant)~~ |  |  |  |  |  |
| ~~QN~~ |  | ~~short~~ |  |  |  | ~~Gotte à graine blanche~~ | ~~3~~ |
|  |  | ~~medium~~ |  |  |  | ~~Samourai~~ | ~~5~~ |
|  |  | ~~tall~~ |  |  |  | ~~Danilla, Hilde II~~ | ~~7~~ |
| ~~37.~~ | ~~VG~~ | ~~Plant: fasciation (at flowering stage)~~ |  |  |  |  |  |
| **~~QL~~** |  | ~~absent~~ |  |  |  | ~~Calmar, Romance~~ | ~~1~~ |
|  |  | ~~present~~ |  |  |  | ~~Gotte jaune d’or~~ | ~~9~~ |
| 31.  (old 37 and 38)  (+) | VG | Plant: fasciation |  |  |  |  |  |
| QN |  | absent or very weak |  |  |  | Aquarel,  Gotte à graine blanche | 1 |
|  |  | weak |  |  |  | Verte maraîchère | 2 |
|  |  | medium |  |  |  | Amadeus | 3 |
|  |  | strong |  |  |  | ~~Gotte jaune d’or,~~ Rougini | 4 |
|  |  | very strong |  |  |  | ~~Chicon des Charentes,~~ Sartre, Verdetrix | 5 |
| 32. (old 39)  (+)  QL | VG | Resistance to downy mildew  (*Bremia lactucae*) |  |  |  |  |  |
| **~~39.1~~** |  | **~~Isolate Bl: 2~~** |  |  |  |  |  |
|  |  | ~~absent~~ |  |  |  | ~~Green Towers~~ | ~~1~~ |
|  |  | ~~present~~ |  |  |  | ~~Ninja~~ | ~~9~~ |
| **~~39.2~~** |  | **~~Isolate Bl: 5~~** |  |  |  |  |  |
|  |  | ~~absent~~ |  |  |  | ~~Green Towers~~ | ~~1~~ |
|  |  | ~~present~~ |  |  |  | ~~Sabine~~ | ~~9~~ |
| **~~39.3~~** |  | **~~Isolate Bl: 7~~** |  |  |  |  |  |
|  |  | ~~absent~~ |  |  |  | ~~Green Towers~~ | ~~1~~ |
|  |  | ~~present~~ |  |  |  | ~~Valmaine~~ | ~~9~~ |
| ~~39.4~~ |  | ~~Isolate Bl: 12~~ |  |  |  |  |  |
|  |  | ~~absent~~ |  |  |  | ~~Green Towers~~ | ~~1~~ |
|  |  | ~~present~~ |  |  |  | ~~Dandie, UCDM2~~ | ~~9~~ |
| **~~39.5~~** |  | **~~Isolate Bl: 14~~** |  |  |  |  |  |
|  |  | ~~absent~~ |  |  |  | ~~Green Towers~~ | ~~1~~ |
|  |  | ~~present~~ |  |  |  | ~~Colorado, Ninja~~ | ~~9~~ |
| **~~39.6~~** |  | **~~Isolate Bl: 15~~** |  |  |  |  |  |
|  |  | ~~absent~~ |  |  |  | ~~Green Towers~~ | ~~1~~ |
|  |  | ~~present~~ |  |  |  | ~~Colorado, Sabine~~ | ~~9~~ |
| **32.1 (\*)** |  | **Isolate Bl: 16** |  |  |  |  |  |
|  |  | absent |  |  |  | Green Towers | 1 |
|  |  | present |  |  |  | Argelès, Ninja | 9 |
| **32.2** |  | **Isolate Bl: 17** |  |  |  |  |  |
|  |  | absent |  |  |  | Green Towers | 1 |
|  |  | present |  |  |  | Argelès, Ninja | 9 |
| **~~39.9~~** | **~~(c)~~** | **~~Isolate Bl: 18~~** |  |  |  |  |  |
|  |  | ~~absent~~ |  |  |  | ~~Green Towers~~ | ~~1~~ |
|  |  | ~~present~~ |  |  |  | ~~Argelès, Ninja~~ | ~~9~~ |
| **32.3** |  | **Isolate Bl: 20** |  |  |  |  |  |
|  |  | absent |  |  |  | Green Towers | 1 |
|  |  | present |  |  |  | Argelès, Ninja | 9 |
| **32.4** |  | **Isolate Bl: 21** |  |  |  |  |  |
|  |  | absent |  |  |  | Green Towers | 1 |
|  |  | present |  |  |  | Argelès, Colorado | 9 |
| **32.5** |  | **Isolate Bl: 22** |  |  |  |  |  |
|  |  | absent |  |  |  | Green Towers | 1 |
|  |  | present |  |  |  | Discovery, Ninja | 9 |
| **32.6** |  | **Isolate Bl: 23** |  |  |  |  |  |
|  |  | absent |  |  |  | Green Towers | 1 |
|  |  | present |  |  |  | Colorado,  Discovery, Ninja | 9 |
| **32.7** |  | **Isolate Bl: 24** |  |  |  |  |  |
|  |  | absent |  |  |  | Argelès, Colorado | 1 |
|  |  | present |  |  |  | Dandie, NunDm15, UC DM14 | 9 |
| **32.8** |  | **Isolate Bl: 25** |  |  |  |  |  |
|  |  | absent |  |  |  | Colorado, Discovery | 1 |
|  |  | present |  |  |  | Argelès, Ninja | 9 |
| **32.9** |  | **Isolate Bl: 26** |  |  |  |  |  |
|  |  | absent |  |  |  | Colorado, Discovery | 1 |
|  |  | present |  |  |  | Balesta, Bedford | 9 |
| **32.10** |  | **Isolate Bl: 27** |  |  |  |  |  |
|  |  | absent |  |  |  | Balesta, Colorado | 1 |
|  |  | present |  |  |  | ~~Bedford,~~ Discovery, Ninja | 9 |
| **32.11** |  | **Isolate Bl: 28** |  |  |  |  |  |
|  |  | absent |  |  |  | Argelès, Colorado | 1 |
|  |  | present |  |  |  | Bedford, Discovery | 9 |
| **32.12** |  | **Isolate Bl: 29** |  |  |  |  |  |
|  |  | absent |  |  |  | Argelès, Discovery | 1 |
|  |  | present |  |  |  | Balesta, Ninja | 9 |
| **32.13** |  | **Isolate Bl: 30** |  |  |  |  |  |
|  |  | absent |  |  |  | Argelès, Colorado | 1 |
|  |  | present |  |  |  | Balesta, Ninja | 9 |
| **32.14** |  | **Isolate Bl: 31** |  |  |  |  |  |
|  |  | absent |  |  |  | Colorado, RYZ910457 | 1 |
|  |  | present |  |  |  | Argelès, Balesta | 9 |
| **33.  (old 40)  (+)** | **VG** | **Resistance to lettuce mosaic virus (LMV) strain Ls 1** |  |  |  |  |  |
| **QL** |  | absent |  |  |  | Bijou, Hilde II~~, Salvina~~ | 1 |
|  |  | present |  |  |  | Corsica, Diveria | 9 |
| **34.  (old 41)  (+)** | **VG** | **Resistance to *Nasonovia ribisnigri* biotype Nr: 0** |  |  |  |  |  |
| **QL** |  | absent |  |  |  | Abel, Green Towers, Nadine | 1 |
|  |  | present |  |  |  | Barcelona, Dynamite, Silvinas | 9 |
| **35.  (old 42)   (+)** | **VG** | **Resistance to *Fusarium oxysporum* f. sp. *lactucae* race 1** |  |  |  |  |  |
| **QL** |  | absent |  |  |  | Cobham Green, Patriot, ~~Salinas~~ | 1 |
|  |  | present |  |  |  | Costa Rica No. 4, Romasol | 9 |

# Explanations on the Table of Characteristics

*8.1 Lettuce growth (sub-)types (under section 5.3)*

|  |  |
| --- | --- |
|  |  |
| Butterhead lettuce | Crisp lettuce |
|  | Iceberg |

|  |  |
| --- | --- |
|  | M:\Rassenonderzoek\Fotodatabase\Gewassen Rassen en Proeven\sla\Aquarel 2009 Z1074.JPG |
| Crisp lettuce | Crisp lettuce |
| Batavia | Open heading Batavia |

|  |  |
| --- | --- |
|  |  |
| Cos lettuce | Grasse lettuce |

|  |  |
| --- | --- |
|  |  |
| Cutting lettuce | Cutting lettuce |
| Frisée d'Amérique | Oakleaf |

|  |  |
| --- | --- |
|  |  |
| Cutting lettuce | Cutting lettuce |
| Oakleaf | Frillice |

|  |  |
| --- | --- |
|  |  |
| Cutting lettuce | Cutting lettuce |
| Lollo | Divided |
|  |  |

|  |  |  |
| --- | --- | --- |
|  | M:\Rassenonderzoek\Fotodatabase\Gewassen Rassen en Proeven\sla\Aquino SLA 12 528.JPG | M:\Rassenonderzoek\Fotodatabase\Gewassen Rassen en Proeven\sla\Felucca SLA 11 1129.jpg |
| M:\Rassenonderzoek\Fotodatabase\Gewassen Rassen en Proeven\sla\Xeres SLA 10 407.JPG | M:\Rassenonderzoek\Fotodatabase\Gewassen Rassen en Proeven\sla\Cook SLA 11 1125.jpg |
| Cutting lettuce | Cutting lettuce | |
| Divided | Multileaf | |

|  |  |
| --- | --- |
|  | https://www.zaadhandelvanderwal.nl/nl/images/524/w,200/h,0 |
| Novita lettuce | Stem lettuce |

8.2 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) Plant and head: Observations on the plant and head should be made at harvest maturity. For non-heading varieties observations should be made just before deterioration and before bolting.

(b) Leaf: Observations on the leaf should be made at harvest maturity. For varieties with a closed head the largest outer leaves should be observed. For non-heading varieties the largest leaves should be observed, just before deterioration and before bolting.

8.3 Explanations for individual characteristics

Ad. 3: Plant: head formation

|  |  |  |
| --- | --- | --- |
| M:\Rassenonderzoek\Fotodatabase\Gewassen Rassen en Proeven\sla\Satine 2008 Z793.JPG | M:\Rassenonderzoek\Fotodatabase\Gewassen Rassen en Proeven\sla\Aquarel 2009 Z1074.JPG | M:\Rassenonderzoek\Fotodatabase\Gewassen Rassen en Proeven\sla\Altadis SLA 10 381.JPG |
| 1 | 2 | 3 |
| no head | open head | closed head |

1. No head: plant with a loose structure of the heart. By cutting the stem out of the harvested plant, the plant will fall apart into loose leaves.
2. Open head: plant with a dense structure of the heart. By cutting the stem out of the harvested plant, an open head will remain of which the upper part of leaves are not overlapping.
3. Closed head: plant with a dense structure of the heart. By cutting the stem out of the harvested plant, the outer leaves will fall off, but a closed head will remain of which the upper part of leaves are overlapping.

Ad. 4: Only cutting lettuce varieties: Plant: number of leaves

Observe number of leaves of the whole plant by cutting the stem out of the harvested plant.

Ad. 5: Leaf: attitude

|  |  |  |
| --- | --- | --- |
| Bladhouding opgericht | Bladhouding halfopgericht | Bladhouding horizontaal |
| 1 | 3 | 5 |
| erect | semi-erect | horizontal |

Ad. 6: Leaf: division

Divided leaves have incisions more than halfway to the midrib.

|  |  |
| --- | --- |
|  |  |
| 1 | 2 |
| entire | divided |

Ad. 7: Only varieties with divided leaves: Leaf: number of divisions

To observe only the incisions more than halfway to the midrib. Incisions less than halfway to the midrib are to be described as incisions of the margin (Char. 22 and 23).

|  |  |  |  |
| --- | --- | --- | --- |
| gedeeldheid zeer zwak | IMG_7253 | IMG_7241 | |
| 1 | 3 | 5 |
| very small | small | medium |

|  |  |
| --- | --- |
| IMG_7249 | IMG_7248 |
| 7 | 9 |
| large | very large |

Ad. 8: Only oakleaf sub-types: Leaf: width of lobes

|  |  |  |
| --- | --- | --- |
|  |  |  |
| 3 | 5 | 7 |
| narrow | medium | broad |

Ad. 9: Only varieties with entire leaves: Leaf: shape

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
| 1 | 2 | 3 | 4 | 5 |
| narrow elliptic | medium elliptic | broad elliptic | circular | transverse broad elliptic |

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| 6 | 7 | 8 | 9 |
| transverse narrow elliptic | obovate | broad obtrullate | triangular |

Ad. 10: Only varieties with entire leaves: Leaf: cross section

|  |  |  |
| --- | --- | --- |
| Tiago 2008 K355 | Santarinas SLA 12 1051 | Sunstar 2007 Z 867 |
| 1 | 3 | 5 |
| Convex | flat | concave |

Ad. 11: Leaf: anthocyanin coloration

In some cases, for example when the area of anthocyanin is very small or when environmental conditions are not optimal for anthocyanin coloration, a seedling test may be useful. Stressing seedlings under cold and dry conditions gives a clear and easy indication on presence or absence of anthocyanin.

Ad. 12: Leaf: area covered with anthocyanin coloration

To observe the total area of diffused or localised anthocyanin coloration.

Ad. 13: Leaf: hue of anthocyanin coloration

Ad. 14: Leaf: intensity of anthocyanin coloration

|  |  |  |  |
| --- | --- | --- | --- |
| Intensity of anthocyanin coloration (Ch. 14) | Hue of anthocyanin coloration (Ch. 13) | | |
| 1 reddish | 2 brownish | 3  purplish |
| 1 very weak |  |  |  |
| 3 weak | Du bon jardinier,  Steirer Krauthauptel | Brauner Trotzkopf, Diablo, Maravilla de Verano |  |
| 5 medium | Lollo rossa | Frisée d’Amérique, Luana, New Red Fire,  Salad bowl rossa |  |
| 7 strong | Jadigon | Duplex,  Merveille des quatre saisons |  |
| 9 very strong | Revolution | Multired 54 | Faradia, Iride |

Ad. 15: Leaf: hue of green color

Ad. 16: Leaf: intensity of green color

Only to describe for green varieties and for two-colored varieties with an area covered with anthocyanin smaller than large, so the green color of the leaf can be observed without picking a leaf from the plant.

|  |  |  |  |
| --- | --- | --- | --- |
| Intensity of color (Ch. 16) | Hue of green color  (Ch. 15) | | |
| 1 absent | 2 yellowish | 3 greyish |
| 1 very light |  |  |  |
| 3 light | Blonde maraîchère,  New Red Fire | Lollo, Steirer Krauthauptel | Celtuce |
| 5 medium | Ballerina | Aquarel, Australische Gele, Dorée de printemps | Clarion, Du bon jardinier, Durango |
| 7 dark | Actarus, Baby Star, Expedition, Verpia |  | Webbs Wonderful |
| 9 very dark | Pascal, Verdetrix |  |  |

Ad. 22: Leaf: depth of incisions on margin of apical part

Ad. 23: Leaf: density of incisions on margin of apical part

|  |  |
| --- | --- |
|  |  |

Ad. 24: Leaf: venation

|  |  |  |
| --- | --- | --- |
| **X:\UPOV\Guidelines\Groente\Sla\niet-waaiervormig.jpeg** | IMG_7261 | **X:\UPOV\Guidelines\Groente\Sla\waaiervormig.jpeg** |
| 1 | 2 | 3 |
| not flabellate | semi flabellate | flabellate |

Ad. 25: Only cutting lettuce varieties: Heart: density

Density of the leaves at the center of the plant. To be observed at full grown stage, just before deterioration or bolting.

Ad. 26: Only varieties with closed head: Head: degree of overlapping of upper part of leaves

|  |  |  |
| --- | --- | --- |
|  |  |  |
| 1 | 3 | 5 |
| very weak | weak | medium |

|  |  |
| --- | --- |
|  |  |
| 7 | 9 |
| strong | very strong |

Ad. 28: Only varieties with closed head: Head: shape in longitudinal section

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| 1 | 2 | 3 | 4 |
| narrow elliptic | broad elliptic | circular | transverse broad elliptic |

Ad. 30: Time of beginning of bolting under long day conditions

To be observed when 50% of the plants start to bolt. The top of the bolting stem can be seen or felt at the top of the plant.

Ad. 31: Plant: fasciation

To be observed at the bolted plant, when the first flowers are open.

Varieties with very late time of beginning of bolting and closed head: the cover leaves of the head should be incised just before deterioration in order to be able to observe fasciation.

Ad. 32: Resistance to downy mildew (*Bremia lactucae*)(Bl:16-31)

|  |  |
| --- | --- |
|  |  |
| **\* 1. Pathogen** | ***Bremia lactucae*** |
| 2. Quarantine status | - |
| \* 3. Host species | *Lactuca sativa* L. |
| \* 4. Source of inoculum | GEVES (France) or Naktuinbouw (The Netherlands) |
| **\* 5. Isolate** | **Bl: ~~2,5,7,12,14,15,~~16, 17, 20-31** (see table below) |
| 6. Establishment isolate identity | Test on differentials |
| 7. Establishment pathogenicity | Test on susceptible varieties |
| **8. Multiplication inoculum** |  |
| 8.1 Multiplication medium | Lettuce leaf |
| 8.2 Multiplication variety | Susceptible variety, for example Green Towers.  For higher races, a variety with defeated resistance may be preferable to keep the isolate fit. |
| 8.3 Plant stage at inoculation | Cotyledon to first leaf |
| 8.4 Inoculation medium | Tap water |
| 8.5 Inoculation method | Spraying a spore suspension |
| 8.6 Harvest of inoculum | Washing off from leaves |
| 8.7 Check of harvested inoculum | Counting spores |
| 8.8 Shelf life/viability inoculum | 2 hours at room temperature; 2 days in fridge |
| **9. Format of the test** |  |
| \* 9.1 Number of plants per genotype | Normally 60, minimum 20 |
| \* 9.2 Number of replicates | - |
| \* 9.3 Control varieties | (Informative) differentials |
|  |  |
| \* 9.4 Test design | Include control varieties |
| 9.5 Test facility | Climate room |
| 9.6 Temperature | 15°C-17°C |
| 9.7 Light | Adequate for good plant growth;  seedlings should not etiolate.  Reduced light 24 hours after inoculation |
| 9.8 Season | - |
| 9.9 Special measures | Plants may grow on wet blotting paper with or without a nutrient solution, or on potting soil. High humidity (>90%) is essential for infection and sporulation. |
| **10. Inoculation** |  |
| 10.1 Preparation inoculum | Washing off from leaves by vigorous shaking in a closed container |
| 10.2 Quantification inoculum | Counting spores ; spore density should be 3.104-1.105 |
| \*10.3 Plant stage at inoculation | Cotyledon stage |
| \*10.4 Inoculation method | Spraying till run-off  Reduced light 24 hours after inoculation |
| 10.5 First observation | 7 days after inoculation |
| 10.6 Second observation | 10 days after inoculation |
| \*10.7 Final observations | 13 days after inoculation; two of these three time points may be sufficient. The day of maximum sporulation should occur in this period. |
| **11. Observations** |  |
| \*11.1 Method | Visual observation of sporulation and necrotic reaction to infection |
| \*11.2 Observation scale | + 1. Abundant sporulation on both sides of the cotyledon  (+) 2. Normal sporulation on the lower side of the cotyledon  3. Normal sporulation on the lower side of the cotyledons combined with necrotic spots  (-) 4. Sparse sporulation on the lower side of the cotyledons combined with necrosis  (-) 5. Necrotic pinpoints  - 6. No symptoms |
|  |  |
| \*11.3 Validation of test | On standards. In case of a large percentage of plants in class 3 a retest is needed. |
| 11.4 Off-types | Plants in class 1 or 2 in a resistant variety  Plants in class 4, 5 or 6 in a susceptible variety  3 or less off-types in 60 plants |
| \*12. Interpretation of data | Class 1, 2 ~~and 3~~: susceptible  Class 3: undecided  Class 4, 5 and 6: resistant |
|  |  |
|  |  |
| **13. Critical control points:** | Reaction of standards. The infection pressure may vary between experiments, leading to slight differences in sporulation intensity. When the reactions are not clear the experiment should be repeated. |

For reference: The international Bremia evaluation board (IBEB) produces regular updates of the host differential reaction table. The most recent table is available through ISF at [www.worldseed.org](http://www.worldseed.org). The table for isolates mentioned in this guideline is given below.



Ad. 33: Resistance to lettuce mosaic virus (LMV)

|  |  |
| --- | --- |
| **1. Pathogen** | **Lettuce mosaic virus** |
| 2. Quarantine status | No |
| \* 3. Host species | Lettuce - *Lactuca sativa* |
| \* 4. Source of inoculums | Isolate collection at Naktuinbouw |
| \* 5. Strain | Ls1 |
| 6. Establishment isolate identity | resistant and susceptible controls |
| 7. Establishment pathogenicity | susceptible control inoculation |
| **8. Multiplication inoculums** |  |
| 8.1 Multiplication medium |  |
| 8.2 Multiplication variety | susceptible control |
| 8.3 Plant stage at inoculation | 2-3 leaves |
| 8.4 Inoculation medium | 0,05 M PBS, 0,25% (w/v) Na2SO3 0,5% C5H10NNaS2.3H2O, 4% carborundum and 5% active charcoal |
| 8.5 Inoculation method | rubbing; repeat this 4 after 4 d; 1-2 h high humidity after inoculation |
| 8.6 Harvest of inoculums | homogenized fresh leaf in buffer (50% w/v)  freeze-dried leaves can be kept less than 1 year in storage  long term storage at -80°C |
| 8.7 Check of harvested inoculums | compare with mock inoculation with LMV buffer + carborundum+ charcoal |
| 8.8 Shelf life/viability inoculums | 2 h at 4°C or on ice |
| **9. Format of the test** |  |
| \* 9.1 # plants per genotype | at least 20 |
| \* 9.2 # replicates | 1 |
| \* 9.3 Control varieties | R = Corsica, Diveria; S = Bijou, Hilde II, Sprinter |
| \* 9.4 Test design | 8 mock-inoculated plants in the same tray |
| 9.5 Test facility | Climate chamber |
| 9.6 Temperature | 2 days after sowing 15°C, then 23/18°C d/n, after second inoculation again 15°C |
| 9.7 Light | 16/8 h d/n; light ca. 5000 lux |
| 9.8 Season |  |
| 9.9 Special measures |  |
| **10. Inoculation** |  |
| 10.1 Preparation inoculum | fresh leaf ground in fresh LMV buffer incl. carborundum and active charcoal |
| 10.2 Quantification inoculum | No |
| \*10.3 Plant stage at inoculation | 1st inoculation, 4d later 2nd inoculation |
| \*10.4 Inoculation method | rubbing, rinse carborundum off |
| \*10.5 End of test | 21 dpi for red lettuce; 14 dpi for green lettuce |
| **11. Observations** |  |
| \*11.1 Method | Visual estimate of mosaic severity. Compare with standards. |
| \*11.2 Observation scale | Resistant standard = no symptoms |
|  | Susceptible standard = growth retardation, young leaves with mosaic, leaf curling |
| \*11.3 Validation of test | Standards should conform to description |
| 11.4 Off-types |  |
| \*12. Interpretation of data | Classify R or S per plant |
|  | Comparisons preferably within between standards of same crop type |
| **13. Critical control points:**  ‘Sprinter’ is less susceptible than many other susceptible varieties. This variety can be used to detect low inoculation pressure in a specific experiment. Red anthocyan color in leaves may mask mosaic symptoms | |

Ad. 34: Resistance to *Nasonovia ribisnigri* (Nr:0)

\*1. **Pathogen**  ***Nasonovia ribisnigri***

2. Quarantine status no

\* 3. Host species *Lactuca sativa* (Lettuce)

\* 4. Source of inoculum Naktuinbouw

\* 5. Isolate Nr:0 (non-resistance breaking), red coloured biotype

6. Establishment isolate identity the ends of the legs are black, size 1.5-2.5 mm

7. Establishment pathogenicity with susceptible control Abel

8. **Multiplication inoculum**

8.1 Multiplication medium -

8.2 Multiplication variety Abel

8.3 Plant stage at inoculation 4 leaves

8.4 Inoculation medium -

8.5 Inoculation method transfer ~5 aphids per plant with a fine painting brush

8.6 Harvest of inoculum transfer to Petri-dish; shake off when aphids are numerous; carefully remove aphids using a fine painting brush when only few are available

8.7 Check of harvested inoculum check the black ends of the aphids legs

8.8 Shelf life/viability inoculum a few hours in shadow

9. **Format of the test**

\* 9.1 # plants per genotype 28

\* 9.2 # replicates no replicates

\* 9.3 Control varieties **Susceptible: Abel, Nadine**

**Resistant: Dynamite, Barcelona**

\* 9.4 Test design no

9.5 Test facility Glasshouse

9.6 Temperature 12°C for germination and early growth

9.7 Light daylight

9.8 Season temperature 20-22°C, keep below 26°C

9.9 Special measures containment of winged aphids needs special attention

10**. Inoculation**

10.1 Preparation inoculum transfer by shake-off or with brush into Petri-dish

10.2 Quantification inoculum -

\*10.3 Plant stage at inoculation 15 d old lettuce seedlings

\*10.4 Inoculation method transfer 5 small or medium sized aphids to each plant

10.5 First observation 10 d post inoculation

10.6 Second observation daily check after first observation

\*10.7 End of test max. 15 d post inoculation

11. **Observations**

\*11.1 Method count red aphids per plant; if many aphids are present, strong growth reduction can be observed; for this observation, a separate aphid free tent is necessary for blanks

\*11.2 Observation scale **0 no aphids**

**1 1-5 aphids**

**2 6-10 aphids**

**3 >10 aphids**

\*11.3 Validation of test Controls should be >95% ok; if >5% (2/28 plants) plants are undecided or off-type, the experiment should be repeated

11.4 Off-types -

\*12. Interpretation of data **0 or 1 Resistant**

**2 Undecided**

**3 Susceptible**

13. **Critical control points**: allow sufficient time for the aphids born after inoculation to mature and turn red; as soon as this is the case, the test must be concluded; this may be before 15 dpi. Only adult, red aphids are counted; young aphids are transparent and do not count

|  |  |
| --- | --- |
| Ad. 35: Resistance to *Fusarium oxysporum* f.sp. *lactucae* - race 1 | |
|  |  |
| 1. Pathogen | *Fusarium oxysporum* f.sp*. lactucae* |
| 2. Quarantine status | EPPO alert list |
| 3. Host species | *Lactuca sativa* L. |
| 4. Source of inoculum | NIAS Genebank (JP), INRAN (IT), Naktuinbouw (NL), GEVES (FR) |
| 5. Isolate | Fol: 1 |
| 6. Establishment isolate identity | use microscope and inoculation to lettuce susceptible standard |
| 7. Establishment pathogenicity | use lettuce susceptible standard |
| 8. Multiplication inoculum |  |
| 8.1 Multiplication medium | inoculation by sowing on contaminated soil: Wheat bran-soil medium  inoculation by soaking seedlings: on synthetic liquid medium (e.g. Potatoes Dextrose Broth) |
| 8.3 Plant stage at inoculation | see 10.3 |
| 8.5 Inoculation method | see 10.4 |
| 8.6 Harvest of inoculum | inoculation by sowing on contaminated soil: 7-10 day-old culture  inoculation by soaking seedlings: 15 days |
| 9. Format of the test |  |
| 9.1 Number of plants per genotype | 20 plants |
| 9.2 Number of replicates |  |
| 9.3 Control varieties |  |
| Susceptible | Cobham Green, ~~Salinas,~~ Patriot |
|  | Cobham Green is slightly less ~~and Salinas is less~~ susceptible than Patriot |
| Resistant to Fol: 1 | Costa Rica No.4, Romasol |
| 9.4 Test design | include control varieties |
| 9.5 Test facility | greenhouse or climate room |
| 9.6 Temperature | 20-28 oC |
| 9.7 Light | under natural day length |
| 10. Inoculation |  |
| 10.1 Preparation inoculum | inoculation by sowing on contaminated soil:  Wheat bran-soil medium culture are mixed with sterilized soil  inoculation by soaking seedlings: soaking of roots and of hypocotyls axis for 5 to 15 min in the inoculums suspension and transplantation of inoculated plantlets in soil |
| 10.2 Quantification inoculum | inoculation by sowing on contaminated soil: soil: culture =20: 1  inoculation by soaking seedlings: spores are harvested and adjusted to 107 sp/mL |
| 10.3 Plant stage at inoculation | inoculation by sowing on contaminated soil: seeds stimulated to emerge  remark: avoid seeds rotted by factors other than pathogen.  inoculation by soaking seedlings: cotyledons |
| 10.4 Inoculation method | two methods can be used for inoculation:  by sowing seeds to contaminated soil or by soaking seedlings |
| 10.5 First observation | after 7- 10 days from inoculation |
| 10.6 Second observation | 14 days from inoculation |
| 10.7 Final observations | 20-25 days after inoculation (sowing or soaking) |
| 11. Observations |  |
| 11.1 Method | visual and/or counting number of plants with symptom |
| 11.2 Observation scale | inoculation by sowing on contaminated soil: |
|  | symptoms: stunting, wilting, dead plant |
|  | as reference calculate of Disease Severity Index (DSI) and Disease Incidence(DI) |
|  | 0: healthy |
|  | 1: slightly stunting, growing reduction |
|  | 2: severely stunting |
|  | 3: die |
|  | DSI = (0A + 1B + 2C + 3D) / (A + B + C + D) |
|  | \*A ~ D: number of plants of each category |
|  | DI = (0A + 1B + 2C + 3D) \*100/ ((A + B + C + D)\*3) |
|  | inoculation by soaking seedlings: |
|  | symptoms: growth reduction and brown vessels above cotyledons, dead plant |
| 11.3 Validation of test | analysis of results should be calibrated with results of controls. |
| 12. Interpretation of data | inoculation by sowing on contaminated soil: |
|  | susceptible: severely stunting, wilting, dead plant  (DSI :Relative evaluation to DSI of example variety) (Race1:DI Value is higher than 10%) |
|  | resistant: no stunting, no wilting  (DSI: relative evaluation to DSI of example variety), (Race1: DI value is lower than 10%) |
|  | inoculation by soaking seedlings: |
|  | susceptible: growth reduction and brown vessels above cotyledons, dead plant |
|  | resistant: no growth reduction and no brown vessels above cotyledons |
| 13. Critical control points |  |
| Availability of *Fusarium oxysporum* f.sp. *lactucae* race 1 | |
| NIAS: National Institute of Agrobiological Sciences  2-1-2, Kannondai, Tsukuba, Ibaraki,305-8602, Japan  Tel: +81-29(838)7406, fax: +81-29(838)7408,  E-mail: genebank@nias.affrc.go.jp  <http://www.gene.affrc.go.jp/about_en.php> | |
| INRAN: National Research Institute for Food and Nutrition  Loc. Corno d’Oro SS 18, km 77.70 – 84091 Battipaglia (SA) Italy  Tel: +39 0828 309484, fax +39 0828 302382, E-mail: [romana.bravi@entecra.it](mailto:romana.bravi@entecra.it)  http://www.ense.it | |
| Naktuinbouw Sotaweg 22, P.O. Box 40, 2370 AA Roelofarendsveen, Netherlands  Tel.: + 31 (0) 71 332 62 62, Fax.: + 31 (0) 71 332 63 63  Email: info@naktuinbouw.nl | |
| GEVES: Groupe d’Etude et de Contrôle des Variétés et des Semences  25 Rue Georges Morel, CS 90 024, 49071 Beaucouzé Cedex, France  Valerie.GRIMAULT@geves.fr | |

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# 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 | | | *Lactuca sativa* L. | | | | | | |  | | |
|  | | |  | | | | | | |  | | |
| 1.2 Common name | | | Lettuce | | | | | | |  | | |
|  | | |  | | | | | | | | |  |
|  | | |  | | | | | | |  | | |
| 2. Applicant | | | | | | | | | | | | |
|  | | |  | | | | | | |  | | |
| Name | | |  | | | | | | |  | | |
|  | | |  | | | | | | |  | | |
| Address | | |  | | | | | | |  | | |
|  | | |  | | | | | | |  | | |
| Telephone No. | | |  | | | | | | |  | | |
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| Fax No. | | |  | | | | | | |  | | |
|  | | |  | | | | | | |  | | |
| E-mail address | | |  | | | | | | |  | | |
|  | | |  | | | | | | |  | | |
| Breeder (if different from applicant) | | | | | | | | | |  | | |
|  | | |  | | | | | | |  | | |
|  | | |  | | | | | | |  | | |
|  | | |  | | | | | | |  | | |
| 3. Proposed denomination and breeder’s reference | | | | | | | | | | | | |
|  | | |  | | | | | | |  | | |
| Proposed denomination | | |  | | | | | | |  | | |
| (if available) | | |  | | | | | | |  | | |
| Breeder’s reference | | |  | | | | | | |  | | |
|  | | |  | | | | | | |  | | |
| [[2]](#footnote-2)#4. Information on the breeding scheme and propagation of the variety  4.1 Breeding scheme  Variety resulting from:  4.1.1 Crossing  (a) controlled cross [ ]  (please state parent varieties)  (…………………..……………..…) x (……………..…………………..…)  female parent male parent  (b) partially known cross [ ]  (please state known parent variety(ies))  (…………………..……………..…) x (……………..…………………..…)  female parent male parent  (c) unknown cross [ ]  4.1.2 Mutation [ ]  (please state parent variety)     |  | | --- | |  |   4.1.3 Discovery and development [ ]  (please state where and when discovered and how developed)   |  | | --- | |  |   4.1.4 Other [ ]  (please provide details)   |  | | --- | |  | | | | | | | | | | | | | |
| 4.2 Method of propagating the variety  (a) Self-pollination [ ]  (b) Other [ ]  (please provide details)   |  | | --- | |  | | | | | | | | | | | | | |
| 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** | **Growth (sub-)types (according to Section 8.1 of the Test Guidelines)** | | | | | | |  | | |  | |
|  | Butterhead lettuce | | | | | | | Clarion, Maikönig | | | [ ] | |
|  | Crisphead lettuce | | | Iceberg | | | | Great Lakes 659, Roxette, Saladin, Vanguard 75 | | | [ ] | |
|  |  | | | heading Batavia | | | | Curtis, Masaida, Visyon | | | [ ] | |
|  |  | | | open heading Batavia | | | | Aquarel, Funnice | | | [ ] | |
|  | Cos lettuce | | | | | | | Actarus, Blonde maraîchère, Pinokkio, | | | [ ] | |
|  | Grasse lettuce | | | | | | | Craquerelle du Midi, Sucrine, Xanadu | | | [ ] | |
|  | Cutting lettuce | | | Frisée d'Amérique | | | | Bijou, Faradia, Grand Rapids | | | [ ] | |
|  |  | | | Oakleaf | | | | Catalogna, Kipling, Muraï, Salad Bowl | | | [ ] | |
|  |  | | | Frillice | | | | Frilett | | | [ ] | |
|  |  | | | Lollo | | | | Lollo rossa, Revolution | | | [ ] | |
|  |  | | | Divided | | | | Curletta, Duplex, Jadigon, Rodagio | | | [ ] | |
|  |  | | | Multileaf | | | | Felluca , Sartre, Xeres | | | [ ] | |
|  | Novita lettuce | | | | | | | Norvick | | | [ ] | |
|  | Stem lettuce | | | | | | | Celtuce | | | [ ] | |
| **5.2 (1)** | **Seed: color** | | | | | | |  | | |  | |
|  | white | | | | | | | Verpia | | | 1[ ] | |
|  | yellow | | | | | | | Durango | | | 2[ ] | |
|  | black | | | | | | | Kagraner Sommer 2 | | | 3[ ] | |
| **5.3 (11)** | **Leaf: anthocyanin coloration** | | | | | | |  | | |  | |
|  | absent | | | | | | | Clarion | | | 1[ ] | |
|  | present | | | | | | | Lollo rossa | | | 9[ ] | |
|  | Characteristics | | | | | | | Example Varieties | | | Note | |
| **5.4 (14)** | **Leaf: intensity of anthocyanin coloration** | | | | | | |  | | |  | |
|  | very weak | | | | | | | ~~Chicon de Charentes, Muranta, Rumina~~ | | | 1[ ] | |
|  | very weak to weak | | | | | | |  | | | 2[ ] | |
|  | weak | | | | | | | Du bon jardinier | | | 3[ ] | |
|  | weak to medium | | | | | | |  | | | 4[ ] | |
|  | medium | | | | | | | Lollo rossa, Luana, ~~Trocadéro à graine noire~~ | | | 5[ ] | |
|  | medium to strong | | | | | | |  | | | 6[ ] | |
|  | strong | | | | | | | ~~Amandine,~~ Merveille des quatre saisons | | | 7[ ] | |
|  | strong to very strong | | | | | | |  | | | 8[ ] | |
|  | very strong | | | | | | | ~~Little Leprechaun,~~ Iride, Revolution | | | 9[ ] | |
| **5.5 (15)** | **Leaf: hue of green color (only for (partly) greenish varieties)** | | | | | | |  | | |  | |
|  | absent | | | | | | | ~~Donatello,~~ Verpia | | | 1[ ] | |
|  | yellowish | | | | | | | Dorée de printemps | | | 2[ ] | |
|  | greyish | | | | | | | Celtuce, Du bon jardinier | | | 3[ ] | |
| **5.6 (16)** | **Leaf: intensity of green color (only for (partly) greenish varieties)** | | | | | | |  | | |  | |
|  | very light | | | | | | |  | | | 1[ ] | |
|  | very light to light | | | | | | |  | | | 2[ ] | |
|  | light | | | | | | | Blonde maraîchère, Lollo | | | 3[ ] | |
|  | light to medium | | | | | | |  | | | 4[ ] | |
|  | medium | | | | | | | Aquarel, Clarion | | | 5[ ] | |
|  | medium to dark | | | | | | |  | | | 6[ ] | |
|  | dark | | | | | | | Expedition, Verpia | | | 7[ ] | |
|  | dark to very dark | | | | | | |  | | | 8[ ] | |
|  | very dark | | | | | | | Pascal, Verdetrix | | | 9[ ] | |
|  | Characteristics | | | | | | | Example Varieties | | | Note | |
| **5.4 (30)** | **Time of beginning of bolting under long day conditions** | | | | | | |  | | |  | |
|  | very early | | | | | | | Blonde à couper améliorée | | | 1[ ] | |
|  | very early to early | | | | | | |  | | | 2[ ] | |
|  | early | | | | | | | Gotte à graine blanche | | | 3[ ] | |
|  | early to medium | | | | | | |  | | | 4[ ] | |
|  | medium | | | | | | | ~~Carélia,~~ Pantlika | | | 5[ ] | |
|  | medium to late | | | | | | |  | | | 6[ ] | |
|  | late | | | | | | | Hilde II | | | 7[ ] | |
|  | late to very late | | | | | | |  | | | 8[ ] | |
|  | very late | | | | | | | Erika, ~~Kinemontepas, Rex,~~ Roxette | | | 9[ ] | |
| **5.6 (32.1)** | **Resistance to downy mildew  (*Bremia lactucae*) Isolate Bl: 16** | | | | | | |  | | |  | |
|  | absent | | | | | | | Green Towers | | | 1[ ] | |
|  | present | | | | | | | Argelès, Ninja | | | 9[ ] | |
| 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* | | *Plant: diameter* | | | | *medium* | | | *medium to large* | | | |
|  | |  | | | |  | | |  | | | |
|  | |  | | | |  | | |  | | | |
|  | |  | | | |  | | |  | | | |
| Comments: | | | | | | | | | | | | |
| [[3]](#footnote-3)#7. Additional information which may help in the examination of the variety  7.1 In addition to the information provided in sections 5 and 6, are there any additional characteristics which may help to distinguish the variety?  Yes [ ] No [ ]  (If yes, please provide details)  7.2 Are there any special conditions for growing the variety or conducting the examination?  Yes [ ] No [ ]  (If yes, please provide details)  7.3 Other information  7.3.1 Special conditions for the examination of the variety  Type of culture:  - in glasshouse [ ]  - in the open [ ] | | | | | | | | | | | | |
| 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]

1. \* 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](http://www.upov.int)), for the latest information.] [↑](#footnote-ref-1)
2. # Authorities may allow certain of this information to be provided in a confidential section of the Technical Questionnaire. [↑](#footnote-ref-2)
3. # Authorities may allow certain of this information to be provided in a confidential section of the Technical Questionnaire. [↑](#footnote-ref-3)