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# INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

## HAZELNUT

UPOV Code(s): CRYLS\_AVE; CRYLS\_COL;  
CRYLS\_AME; CRYLS\_MNA

*Corylus avellana* L.; *Corylus columna* L.; *Corylus americana* Marshall; Hybrids between *Corylus americana* and *Corylus avellana*

## GUIDELINES

### FOR THE CONDUCT OF TESTS

### FOR DISTINCTNESS, UNIFORMITY AND STABILITY

*prepared by an expert from Italy*

*to be considered by the*

*Technical Working Party for Fruit Crops at its fifty-seventh session,  
to be held in Leipzig, Germany, from 2026-09-07 to 2026-09-10*

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

Alternative Names:\*

| Botanical name                                                                                             | English                                          | French                                        | German                            | Spanish             |
|------------------------------------------------------------------------------------------------------------|--------------------------------------------------|-----------------------------------------------|-----------------------------------|---------------------|
| <i>Corylus avellana</i> L.,<br><i>Corylus maxima</i> Mill.,<br><i>Corylus pontica</i> K.<br>Koch           | Hazelnut                                         | Noisetier                                     | Haselnuss                         | Avellano            |
| <i>Corylus columna</i> L.,<br><i>Corylus iberica</i> Wittm.<br>ex Bobrov                                   | Turkish Hazel                                    | Noisetier de Byzance,<br>Noisetier de Turquie | Baumhasel, Türkische<br>Baumhasel | Avellano de Turquía |
| <i>Corylus americana</i><br>Marshall                                                                       | American filbert,<br>American hazel,<br>Hazelnut |                                               | Amerikanische Hasel               |                     |
| Hybrids between<br><i>Corylus americana</i> and<br><i>Corylus avellana</i> , Enter<br>Other Botanical Name |                                                  |                                               |                                   |                     |

\* 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.]

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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## 1. Subject of these Test Guidelines

1.1 These Test Guidelines apply to all varieties of *Corylus avellana* L., *Corylus colurna* L., *Corylus americana* Marshall and hybrids between *Corylus americana* and *Corylus avellana* for fruit production.

1.2 Guidance on the use of Test Guidelines for interspecific hybrids that are not explicitly covered by Test Guidelines is provided in document TGP/13 "Guidance for New Types and Species".

## 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 young plants on their own roots.

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

5 plants.

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

2.5 The plant material should not have undergone any treatment which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If it has been treated, full details of the treatment must be given.

## 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 may be observed from a single planting, examined in two separate growing cycles.

3.1.3 In particular, it is essential that the plants produce a satisfactory crop of fruit in each of the two growing cycles.

3.1.4 The growing cycle is considered to be the duration of a single growing season, beginning with the dormancy period, followed by bud burst (flowering and/or vegetative), flowering and fruit harvest and concluding when the following dormant period starts.

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

### 3.2 *Testing Place*

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

### 3.3 *Conditions for Conducting the Examination*

3.3.1 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*

Each test should be designed to result in a total of at least 5 plants.

### 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 3 plants or parts taken from each of 3 plants and any other observations made on all plants in the test, disregarding any off-type plants.

In the case of observations of parts taken from single plants, the number of parts to be taken from each of the plants should be 5.

#### 4.1.5 Method of Observation

The recommended method of observing the characteristic for the purposes of distinctness is indicated by the following key in the Table of Characteristics (see document TGP/9 "Examining Distinctness", Section 4 "Observation of characteristics"):

MG: single measurement of a group of plants or parts of plants

MS: measurement of a number of individual plants or parts of plants

VG: visual assessment by a single observation of a group of plants or parts of plants

VS: visual assessment by observation of individual plants or parts of plants

Type of observation: visual (V) or measurement (M)

"Visual" observation (V) is an observation made on the basis of the expert's judgment. For the purposes of this document, "visual" observation refers to the sensory observations of the experts and, therefore, also includes smell, taste and touch. Visual observation includes observations where the expert uses reference points (e.g. diagrams, example varieties, side-by-side comparison) or non-linear charts (e.g. color charts). Measurement (M) is an objective observation against a calibrated, linear scale e.g. using a ruler, weighing scales, colorimeter, dates, counts, etc.

Type of record: for a group of plants (G) or for single, individual plants (S)

For the purposes of distinctness, observations may be recorded as a single record for a group of plants or parts of plants (G), or may be recorded as records for a number of single, individual plants or parts of plants (S). In most

cases, "G" provides a single record per variety and it is not possible or necessary to apply statistical methods in a plant-by-plant analysis for the assessment of distinctness.

In cases where more than one method of observing the characteristic is indicated in the Table of Characteristics (e.g. VG/MG), guidance on selecting an appropriate method is provided in document TGP/9, Section 4.2.

## 4.2 *Uniformity*

4.2.1 It is of particular importance for users of these Test Guidelines to consult the General Introduction prior to making decisions regarding uniformity. However, the following points are provided for elaboration or emphasis in these Test Guidelines:

4.2.2 These Test Guidelines have been developed for the examination of vegetatively propagated varieties. For varieties with other types of propagation, the recommendations in the General Introduction and document TGP/13 "Guidance for new types and species" Section 4.5 "Testing Uniformity" should be followed.

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

## 4.3 *Stability*

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

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

## 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: shape (characteristic 10)
- (b) Involucre: length in relation to length of nut (characteristic 15)
- (c) Involucre: depth of indentations (characteristic 16)
- (d) Nut: size (characteristic 20)
- (e) Nut: shape in lateral view (characteristic 21)
- (f) Nut: shape in cross-section (characteristic 22)
- (g) Nut: percentage of kernel (characteristic 40)
- (h) Time of beginning of female flowering (characteristic 41)
- (i) Time of beginning of male flowering (characteristic 42)
- (j) Time of harvest maturity (characteristic 45)

5.4 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the General Introduction and document TGP/9 "Examining Distinctness".

## 6. Introduction to the Table of Characteristics

### 6.1 *Categories of Characteristics*

#### 6.1.1 Standard Test Guidelines Characteristics

Standard Test Guidelines characteristics are those which are approved by UPOV for examination of DUS and from which members of the Union can select those suitable for their particular circumstances.

#### 6.1.2 Asterisked Characteristics

Asterisked characteristics (denoted by \*) are those included in the Test Guidelines which are important for the international harmonization of variety descriptions and should always be examined for DUS and included in the variety description by all members of the Union, except when the state of expression of a preceding characteristic or regional environmental conditions render this inappropriate.

### 6.2 *States of Expression and Corresponding Notes*

6.2.1 States of expression are given for each characteristic to define the characteristic and to harmonize descriptions. Each state of expression is allocated a corresponding numerical note for ease of recording of data and for the production and exchange of the description.

6.2.2 All relevant states of expression are presented in the characteristic.

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

### 6.3 *Types of Expression*

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

### 6.4 *Example Varieties*

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

## 6.5 Legend

| English |   |                                                   |   | français                                |   | deutsch                                  | español                                   | Example<br>Varieties<br>Exemples<br>Beispielssorten<br>Variedades<br>ejemplo | Note/<br>Nota |
|---------|---|---------------------------------------------------|---|-----------------------------------------|---|------------------------------------------|-------------------------------------------|------------------------------------------------------------------------------|---------------|
| 1       | 2 | 3                                                 | 4 | 5                                       | 6 | 7                                        |                                           |                                                                              |               |
|         |   | <b>Name of<br/>characteristics in<br/>English</b> |   | <b>Nom du caractère<br/>en français</b> |   | <b>Name des Merkmals<br/>auf Deutsch</b> | <b>Nombre del carácter<br/>en español</b> |                                                                              |               |
|         |   | 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)-(f) See Explanations on the Table of Characteristics in Chapter 8.1
- 7 Not applicable

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

|    |     | English                                         |    | français |          | deutsch |  | español | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|----|-----|-------------------------------------------------|----|----------|----------|---------|--|---------|------------------------------------------------------------------------|---------------|
| 1. |     | QN                                              | VG | (+)      | (a)      |         |  |         |                                                                        |               |
|    |     | <b>Plant: vigor</b>                             |    |          |          |         |  |         |                                                                        |               |
|    |     | weak                                            |    |          |          |         |  |         | Kargalak, Tombul                                                       | 1             |
|    |     | weak to medium                                  |    |          |          |         |  |         | Merveille de Bollwiller                                                | 2             |
|    |     | medium                                          |    |          |          |         |  |         | Tonda Gentile delle Langhe                                             | 3             |
|    |     | medium to strong                                |    |          |          |         |  |         | Daviana                                                                | 4             |
|    |     | strong                                          |    |          |          |         |  |         | Fertile de Coutard                                                     | 5             |
| 2. | (*) | PQ                                              | VG |          | (a)      |         |  |         |                                                                        |               |
|    |     | <b>Plant: growth habit</b>                      |    |          |          |         |  |         |                                                                        |               |
|    |     | fastigate                                       |    |          |          |         |  |         | Daviana                                                                | 1             |
|    |     | upright                                         |    |          |          |         |  |         | Butler, San Giovanni, Segorbe                                          | 2             |
|    |     | semi-upright                                    |    |          |          |         |  |         | Fertile de Coutard, Negret, Tonda Gentile delle Langhe, Tonda Romana   | 3             |
|    |     | spreading                                       |    |          |          |         |  |         | Morell, Tombul                                                         | 4             |
|    |     | drooping                                        |    |          |          |         |  |         | Kargalak, Palaz                                                        | 5             |
| 3. |     | QN                                              | VG | (+)      |          |         |  |         |                                                                        |               |
|    |     | <b>Plant: suckers</b>                           |    |          |          |         |  |         |                                                                        |               |
|    |     | absent or very few                              |    |          |          |         |  |         | Balázs, Tonda Bianca                                                   | 1             |
|    |     | few                                             |    |          |          |         |  |         | Cosford, Daviana                                                       | 2             |
|    |     | medium                                          |    |          |          |         |  |         | Segorbe                                                                | 3             |
|    |     | many                                            |    |          |          |         |  |         | Fertile de Coutard                                                     | 4             |
|    |     | very many                                       |    |          |          |         |  |         | Kargalak                                                               | 5             |
| 4. |     | QN                                              | VG |          | (a), (b) |         |  |         |                                                                        |               |
|    |     | <b>One-year-old shoot: density of lenticels</b> |    |          |          |         |  |         |                                                                        |               |
|    |     | absent or sparse                                |    |          |          |         |  |         | Segorbe                                                                | 1             |
|    |     | medium                                          |    |          |          |         |  |         | Mortarella                                                             | 2             |
|    |     | dense                                           |    |          |          |         |  |         | Tonda Gentile delle Langhe                                             | 3             |
| 5. |     | QN                                              | VG |          | (a), (b) |         |  |         |                                                                        |               |
|    |     | <b>One-year-old shoot: density of hairs</b>     |    |          |          |         |  |         |                                                                        |               |
|    |     | absent or sparse                                |    |          |          |         |  |         | Mortarella, Segorbe                                                    | 1             |
|    |     | medium                                          |    |          |          |         |  |         | Fertile de Coutard, Tonda Gentile delle Langhe                         | 2             |
|    |     | dense                                           |    |          |          |         |  |         | Kargalak, Tonda di Giffoni                                             | 3             |

|     |     | English                          |       | français |          | deutsch | español | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|-----|-----|----------------------------------|-------|----------|----------|---------|---------|------------------------------------------------------------------------|---------------|
| 6.  |     | PQ                               | VG    | (+)      | (a), (b) |         |         |                                                                        |               |
|     |     | <b>Bud: shape</b>                |       |          |          |         |         |                                                                        |               |
|     |     | conic                            |       |          |          |         |         | Cosford, Merveille de Bollwiller                                       | 1             |
|     |     | ovoid                            |       |          |          |         |         | Fertile de Coutard, Negret                                             | 2             |
|     |     | globose                          |       |          |          |         |         | Lambert's Filbert                                                      | 3             |
| 7.  | (*) | PQ                               | VG    |          | (a), (b) |         |         |                                                                        |               |
|     |     | <b>Bud: color</b>                |       |          |          |         |         |                                                                        |               |
|     |     | green                            |       |          |          |         |         | Lambert's Filbert, Riccia di Talanico, Segorbe                         | 1             |
|     |     | reddish green                    |       |          |          |         |         | Bergeri, Kargalak, Negret                                              | 2             |
|     |     | red                              |       |          |          |         |         | Fructo rubro, Merveille de Bollwiller                                  | 3             |
| 8.  | (*) | PQ                               | VG    |          | (b), (c) |         |         |                                                                        |               |
|     |     | <b>Male inflorescence: color</b> |       |          |          |         |         |                                                                        |               |
|     |     | green                            |       |          |          |         |         | Fertile de Coutard, Segorbe, Tonda Gentile delle Langhe                | 1             |
|     |     | pink brown                       |       |          |          |         |         | Bergeri, Cosford, Merveille de Bollwiller                              | 2             |
|     |     | red                              |       |          |          |         |         | Rote Zellernuss                                                        | 3             |
| 9.  | (*) | PQ                               | VG    |          | (b), (c) |         |         |                                                                        |               |
|     |     | <b>Stigma: color</b>             |       |          |          |         |         |                                                                        |               |
|     |     | light yellow                     |       |          |          |         |         | Daviana                                                                | 1             |
|     |     | pink                             |       |          |          |         |         | San Giovanni                                                           | 2             |
|     |     | red                              |       |          |          |         |         | Fertile de Coutard                                                     | 3             |
|     |     | purple red                       |       |          |          |         |         | Merveille de Bollwiller                                                | 4             |
| 10. | (*) | PQ                               | VG    | (+)      | (b), (d) |         |         |                                                                        |               |
|     |     | <b>Leaf blade: shape</b>         |       |          |          |         |         |                                                                        |               |
|     |     | elliptic                         |       |          |          |         |         | Merveille de Bollwiller                                                | 1             |
|     |     | ovate                            |       |          |          |         |         | Lambert's Filbert                                                      | 2             |
|     |     | obovate                          |       |          |          |         |         | Tonda di Giffoni                                                       | 3             |
|     |     | circular                         |       |          |          |         |         | Segorbe                                                                | 4             |
| 11. | (*) | QN                               | MG/VG |          | (b), (d) |         |         |                                                                        |               |
|     |     | <b>Leaf blade: size</b>          |       |          |          |         |         |                                                                        |               |
|     |     | very small                       |       |          |          |         |         | Bearn, Gunslebert                                                      | 1             |
|     |     | small                            |       |          |          |         |         | Cosford, Nocchione, Tonda Rossa                                        | 2             |
|     |     | medium                           |       |          |          |         |         | Kargalak, Tonda Bianca                                                 | 3             |
|     |     | large                            |       |          |          |         |         | Merveille de Bollwiller, Tonda di Giffoni                              | 4             |
|     |     | very large                       |       |          |          |         |         | Barcelona, Segorbe                                                     | 5             |

|     |     | English                                                       |       | français |          | deutsch |  | español | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo            | Note/<br>Nota |
|-----|-----|---------------------------------------------------------------|-------|----------|----------|---------|--|---------|-----------------------------------------------------------------------------------|---------------|
| 12. |     | QN                                                            | MG/VG |          | (b), (d) |         |  |         |                                                                                   |               |
|     |     | <b>Petiole: length</b>                                        |       |          |          |         |  |         |                                                                                   |               |
|     |     | short                                                         |       |          |          |         |  |         | Tonda di Giffoni                                                                  | 1             |
|     |     | medium                                                        |       |          |          |         |  |         | Segorbe                                                                           | 2             |
|     |     | long                                                          |       |          |          |         |  |         | Cosford, Fertile de<br>Coutard, Tonda Gentile<br>delle Langhe                     | 3             |
| 13. |     | QN                                                            | VG    |          | (b), (d) |         |  |         |                                                                                   |               |
|     |     | <b>Petiole: density of<br/>hairs</b>                          |       |          |          |         |  |         |                                                                                   |               |
|     |     | absent or sparse                                              |       |          |          |         |  |         | Segorbe                                                                           | 1             |
|     |     | medium                                                        |       |          |          |         |  |         | Merveille de Bollwiller                                                           | 2             |
|     |     | dense                                                         |       |          |          |         |  |         | Fertile de Coutard,<br>Tonda di Giffoni                                           | 3             |
| 14. | (*) | QL                                                            | VG    | (+)      | (e)      |         |  |         |                                                                                   |               |
|     |     | <b>Involucre:<br/>constriction</b>                            |       |          |          |         |  |         |                                                                                   |               |
|     |     | absent                                                        |       |          |          |         |  |         | Fertile de Coutard,<br>Tonda Gentile delle<br>Langhe                              | 1             |
|     |     | present                                                       |       |          |          |         |  |         | Kargalak                                                                          | 9             |
| 15. | (*) | QN                                                            | MG/VG | (+)      | (e)      |         |  |         |                                                                                   |               |
|     |     | <b>Involucre: length in<br/>relation to length of<br/>nut</b> |       |          |          |         |  |         |                                                                                   |               |
|     |     | shorter                                                       |       |          |          |         |  |         | Tonda Bianca                                                                      | 1             |
|     |     | same length                                                   |       |          |          |         |  |         | Cosford, Fertile de<br>Coutard, Merveille de<br>Bollwiller                        | 2             |
|     |     | longer                                                        |       |          |          |         |  |         | Kargalak, Lambert's<br>Filbert, Segorbe, Tombul,<br>Tonda Gentile delle<br>Langhe | 3             |
| 16. | (*) | QN                                                            | VG    | (+)      | (e)      |         |  |         |                                                                                   |               |
|     |     | <b>Involucre: depth of<br/>indentations</b>                   |       |          |          |         |  |         |                                                                                   |               |
|     |     | shallow                                                       |       |          |          |         |  |         | Lambert's Filbert, Tombul                                                         | 1             |
|     |     | medium                                                        |       |          |          |         |  |         | Fertile de Coutard,<br>Tonda Gentile delle<br>Langhe                              | 2             |
|     |     | deep                                                          |       |          |          |         |  |         | Gunslebert                                                                        | 3             |
| 17. | (*) | QN                                                            | VG    | (+)      | (e)      |         |  |         |                                                                                   |               |
|     |     | <b>Involucre: serration</b>                                   |       |          |          |         |  |         |                                                                                   |               |
|     |     | weak                                                          |       |          |          |         |  |         | Lambert's Filbert,<br>Segorbe, Tombul, Tonda<br>Bianca                            | 1             |
|     |     | medium                                                        |       |          |          |         |  |         | Fertile de Coutard,<br>Tonda Gentile delle<br>Langhe                              | 2             |
|     |     | strong                                                        |       |          |          |         |  |         | Gunslebert, Morell,<br>Negret                                                     | 3             |

|     |                                         | English |         | français |        | deutsch | español | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo   | Note/<br>Nota |
|-----|-----------------------------------------|---------|---------|----------|--------|---------|---------|--------------------------------------------------------------------------|---------------|
| 18. |                                         | QN      | VG      | (+)      | (e)    |         |         |                                                                          |               |
|     | <b>Involucre: size of basal support</b> |         |         |          |        |         |         |                                                                          |               |
|     | small                                   |         |         |          |        |         |         | Cosford                                                                  | 1             |
|     | medium                                  |         |         |          |        |         |         | Merveille de Bollwiller, Segorbe                                         | 2             |
|     | large                                   |         |         |          |        |         |         | Fertile de Coutard, Tonda di Giffoni                                     | 3             |
| 19. |                                         | QN      | VG      | (+)      | (e)    |         |         |                                                                          |               |
|     | <b>Involucre: jointing of bracts</b>    |         |         |          |        |         |         |                                                                          |               |
|     | absent                                  |         |         |          |        |         |         | Corabel, Ferwiller, Gunslebert                                           | 1             |
|     | on one side only                        |         |         |          |        |         |         | Fertile de Coutard, Negret, Tonda di Giffoni, Tonda Gentile delle Langhe | 2             |
|     | on both sides                           |         |         |          |        |         |         | Tombul                                                                   | 3             |
| 20. | (*)                                     | QN      | MG/VG   |          | (f)    |         |         |                                                                          |               |
|     | <b>Nut: size</b>                        |         |         |          |        |         |         |                                                                          |               |
|     | very small                              |         |         |          |        |         |         | Sivri                                                                    | 1             |
|     | small                                   |         |         |          |        |         |         | Negret, Tombul, Tonda Gentile delle Langhe                               | 2             |
|     | medium                                  |         | petite  |          | klein  |         | pequeño | Morell, Segorbe, Tonda di Giffoni                                        | 3             |
|     | large                                   |         |         |          |        |         |         | Fertile de Coutard, Merveille de Bollwiller                              | 4             |
|     | very large                              |         | moyenne |          | mittel |         | medio   | Apoldaer Zellernuss, Bergeri, Ennis                                      | 5             |
| 21. | (*)                                     | PQ      | VG      | (+)      | (f)    |         |         |                                                                          |               |
|     | <b>Nut: shape in lateral view</b>       |         |         |          |        |         |         |                                                                          |               |
|     | oblate                                  |         |         |          |        |         |         | Kargalak                                                                 | 1             |
|     | ovate                                   |         |         |          |        |         |         | Imperatrice Eugenie, Negret                                              | 2             |
|     | circular                                |         |         |          |        |         |         | Clark, Fertile de Coutard, Tonda Gentile delle Langhe                    | 3             |
|     | obovate                                 |         |         |          |        |         |         | Butler                                                                   | 4             |
|     | conic                                   |         |         |          |        |         |         | Ennis, Jean's, Merveille de Bollwiller                                   | 5             |
|     | oblong                                  |         |         |          |        |         |         | Cosford, Lambert's Filbert                                               | 6             |
| 22. | (*)                                     | PQ      | VG      | (+)      | (f)    |         |         |                                                                          |               |
|     | <b>Nut: shape in cross-section</b>      |         |         |          |        |         |         |                                                                          |               |
|     | elliptic                                |         |         |          |        |         |         | Lambert's Filbert, Negret                                                | 1             |
|     | circular                                |         |         |          |        |         |         | Merveille de Bollwiller, Tonda Romana                                    | 2             |
|     | angular                                 |         |         |          |        |         |         | Tonda Gentile delle Langhe                                               | 3             |
|     | transverse oblong                       |         |         |          |        |         |         | Gunslebert                                                               | 4             |

|     |     | English                           |    | français |     | deutsch | español | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|-----|-----|-----------------------------------|----|----------|-----|---------|---------|------------------------------------------------------------------------|---------------|
| 23. |     | PQ                                | VG |          | (f) |         |         |                                                                        |               |
|     |     | Nut: color                        |    |          |     |         |         |                                                                        |               |
|     |     | greenish yellow                   |    |          |     |         |         | Tonda Bianca                                                           | 1             |
|     |     | light brown                       |    |          |     |         |         | Cosford, Daviana, Morell, Tonda Gentile delle Langhe                   | 2             |
|     |     | dark brown                        |    |          |     |         |         | Ennis, Fertile de Coutard, Negret, Tonda Romana                        | 3             |
| 24. |     | QN                                | VG |          | (f) |         |         |                                                                        |               |
|     |     | Nut: presence of stripes on shell |    |          |     |         |         |                                                                        |               |
|     |     | absent or weak                    |    |          |     |         |         | Kargalak, Segorbe                                                      | 1             |
|     |     | medium                            |    |          |     |         |         | Cosford, Daviana                                                       | 2             |
|     |     | strong                            |    |          |     |         |         | Camponica                                                              | 3             |
| 25. | (*) | PQ                                | VG | (+)      | (f) |         |         |                                                                        |               |
|     |     | Nut: shape of apex                |    |          |     |         |         |                                                                        |               |
|     |     | narrow acute                      |    |          |     |         |         | Imperatrice Eugenie, Jean's                                            | 1             |
|     |     | broad acute                       |    |          |     |         |         | Merveille de Bollwiller, Negret                                        | 2             |
|     |     | obtuse                            |    |          |     |         |         | Fertile de Coutard, Tonda Gentile delle Langhe                         | 3             |
|     |     | truncate                          |    |          |     |         |         | Kargalak                                                               | 4             |
| 26. | (*) | QN                                | VG | (+)      | (f) |         |         |                                                                        |               |
|     |     | Nut: prominence of mucron         |    |          |     |         |         |                                                                        |               |
|     |     | weak                              |    |          |     |         |         | Cosford, Fertile de Coutard, Tonda di Giffoni                          | 1             |
|     |     | medium                            |    |          |     |         |         | Lambert's Filbert                                                      | 2             |
|     |     | strong                            |    |          |     |         |         | Tonda Romana                                                           | 3             |
| 27. | (*) | QN                                | VG | (+)      | (f) |         |         |                                                                        |               |
|     |     | Nut: size of pistil scar          |    |          |     |         |         |                                                                        |               |
|     |     | small                             |    |          |     |         |         | Negret, Tonda Gentile delle Langhe                                     | 1             |
|     |     | medium                            |    |          |     |         |         | Sivri, Tonda di Giffoni                                                | 2             |
|     |     | large                             |    |          |     |         |         | Feriale, Tombul                                                        | 3             |
| 28. | (*) | QN                                | VG |          | (f) |         |         |                                                                        |               |
|     |     | Nut: density of hairiness at apex |    |          |     |         |         |                                                                        |               |
|     |     | absent or sparse                  |    |          |     |         |         | Cosford, Kargalak                                                      | 1             |
|     |     | medium                            |    |          |     |         |         | Fertile de Coutard                                                     | 2             |
|     |     | dense                             |    |          |     |         |         | Apoldaer Zellernuss, Lambert's Filbert                                 | 3             |

|     |     | English                                                  |       | français |     | deutsch | español | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo       | Note/<br>Nota |
|-----|-----|----------------------------------------------------------|-------|----------|-----|---------|---------|------------------------------------------------------------------------------|---------------|
| 29. | (*) | QN                                                       | VG    | (+)      | (f) |         |         |                                                                              |               |
|     |     | Nut: size of basal scar<br>in relation to size of<br>nut |       |          |     |         |         |                                                                              |               |
|     |     | small                                                    |       |          |     |         |         | Tonda Gentile delle<br>Langhe                                                | 1             |
|     |     | medium                                                   |       |          |     |         |         | Fertile de Coutard                                                           | 2             |
|     |     | large                                                    |       |          |     |         |         | Cosford, Kargalak,<br>Merveille de Bollwiller                                | 3             |
| 30. | (*) | QN                                                       | VG    | (+)      | (f) |         |         |                                                                              |               |
|     |     | Nut: curvature of<br>basal scar                          |       |          |     |         |         |                                                                              |               |
|     |     | concave                                                  |       |          |     |         |         | Feriale                                                                      | 1             |
|     |     | flat                                                     |       |          |     |         |         | Kargalak, Merveille de<br>Bollwiller                                         | 2             |
|     |     | convex                                                   |       |          |     |         |         | Cosford, Lambert's<br>Filbert, Negret                                        | 3             |
| 31. | (*) | QN                                                       | MG/VG |          | (f) |         |         |                                                                              |               |
|     |     | Kernel: size                                             |       |          |     |         |         |                                                                              |               |
|     |     | very small                                               |       |          |     |         |         | Sivri, Tombul                                                                | 1             |
|     |     | small                                                    |       |          |     |         |         | Negret, Tonda Gentile<br>delle Langhe                                        | 2             |
|     |     | medium                                                   |       |          |     |         |         | Segorbe, Tonda di<br>Giffoni, Tonda Romana                                   | 3             |
|     |     | large                                                    |       |          |     |         |         | Daviana, Fertile de<br>Coutard, Merveille de<br>Bollwiller                   | 4             |
|     |     | very large                                               |       |          |     |         |         | Pallagrossa                                                                  | 5             |
| 32. | (*) | PQ                                                       | VG    | (+)      | (f) |         |         |                                                                              |               |
|     |     | Kernel: shape in<br>lateral view                         |       |          |     |         |         |                                                                              |               |
|     |     | angular                                                  |       |          |     |         |         | Kargalak                                                                     | 1             |
|     |     | ovate                                                    |       |          |     |         |         | Imperatrice Eugenie,<br>Merveille de Bollwiller                              | 2             |
|     |     | circular                                                 |       |          |     |         |         | Segorbe, Tonda di<br>Giffoni, Tonda Gentile<br>delle Langhe, Tonda<br>Romana | 3             |
|     |     | obovate                                                  |       |          |     |         |         | Daviana, San Giovanni                                                        | 4             |
|     |     | oblong                                                   |       |          |     |         |         | Cosford, Gunslebert                                                          | 5             |
| 33. |     | PQ                                                       | VG    | (+)      | (f) |         |         |                                                                              |               |
|     |     | Kernel: shape of apex                                    |       |          |     |         |         |                                                                              |               |
|     |     | pointed                                                  |       |          |     |         |         | Fertile de Coutard,<br>Negret                                                | 1             |
|     |     | rounded                                                  |       |          |     |         |         | Gunslebert, San<br>Giovanni, Tonda<br>Romana                                 | 2             |
|     |     | truncate                                                 |       |          |     |         |         | Kargalak                                                                     | 3             |

|     |                                       | English |    | français |     | deutsch | español | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|-----|---------------------------------------|---------|----|----------|-----|---------|---------|------------------------------------------------------------------------|---------------|
| 34. |                                       | PQ      | VG | (+)      | (f) |         |         |                                                                        |               |
|     | <b>Kernel: shape in cross-section</b> |         |    |          |     |         |         |                                                                        |               |
|     | oblong                                |         |    |          |     |         |         | Lambert's Filbert                                                      | 1             |
|     | circular                              |         |    |          |     |         |         | Kargalak, Tonda Romana                                                 | 2             |
|     | obovate                               |         |    |          |     |         |         | Tonda Gentile delle Langhe                                             | 3             |
| 35. |                                       | PQ      | VG | (+)      | (f) |         |         |                                                                        |               |
|     | <b>Kernel: shape of base</b>          |         |    |          |     |         |         |                                                                        |               |
|     | pointed                               |         |    |          |     |         |         | Tombul                                                                 | 1             |
|     | rounded                               |         |    |          |     |         |         | Fertile de Coutard, Merveille de Bollwiller, Negret                    | 2             |
|     | truncate                              |         |    |          |     |         |         | Kargalak, Tonda Gentile delle Langhe, Tonda Romana                     | 3             |
| 36. |                                       | PQ      | VG |          | (f) |         |         |                                                                        |               |
|     | <b>Kernel: color of skin</b>          |         |    |          |     |         |         |                                                                        |               |
|     | yellow brown                          |         |    |          |     |         |         | Ennis                                                                  | 1             |
|     | light brown                           |         |    |          |     |         |         | Cosford                                                                | 2             |
|     | dark brown                            |         |    |          |     |         |         | Lambert's Filbert, Merveille de Bollwiller                             | 3             |
| 37. | (*)                                   | QL      | VG | (+)      | (f) |         |         |                                                                        |               |
|     | <b>Kernel: lateral groove</b>         |         |    |          |     |         |         |                                                                        |               |
|     | absent                                |         |    |          |     |         |         | Fertile de Coutard, Merveille de Bollwiller                            | 1             |
|     | present                               |         |    |          |     |         |         | Imperatrice Eugenie, Lambert's Filbert, Tonda di Giffoni               | 9             |
| 38. | (*)                                   | QN      | VG | (+)      | (f) |         |         |                                                                        |               |
|     | <b>Kernel: presence of fiber</b>      |         |    |          |     |         |         |                                                                        |               |
|     | absent or weak                        |         |    |          |     |         |         | Daviana, Kargalak, Lambert's Filbert                                   | 1             |
|     | medium                                |         |    |          |     |         |         | Fertile de Coutard, Negret, Segorbe                                    | 3             |
|     | strong                                |         |    |          |     |         |         | Cosford                                                                | 5             |
| 39. |                                       | QN      | VG |          | (f) |         |         |                                                                        |               |
|     | <b>Kernel: inner cavity</b>           |         |    |          |     |         |         |                                                                        |               |
|     | absent or small                       |         |    |          |     |         |         | Mortarella                                                             | 1             |
|     | medium                                |         |    |          |     |         |         | Negret, Tonda Gentile delle Langhe, Tonda Romana                       | 2             |
|     | large                                 |         |    |          |     |         |         | Daviana, Ennis, Merveille de Bollwiller                                | 3             |

|     |     | English                                                     |       | français |     | deutsch | español | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|-----|-----|-------------------------------------------------------------|-------|----------|-----|---------|---------|------------------------------------------------------------------------|---------------|
| 40. | (*) | QN                                                          | MG/VG |          | (f) |         |         |                                                                        |               |
|     |     | Nut: percentage of kernel                                   |       |          |     |         |         |                                                                        |               |
|     |     | very low                                                    |       |          |     |         |         | Merveille de Bollwiller                                                | 1             |
|     |     | low                                                         |       |          |     |         |         | Fertile de Coutard, Segorbe                                            | 2             |
|     |     | medium                                                      |       |          |     |         |         | Negret, Tonda Gentile delle Langhe                                     | 3             |
|     |     | high                                                        |       |          |     |         |         | Daviana, Imperatrice Eugenie                                           | 4             |
|     |     | very high                                                   |       |          |     |         |         | Cosford, Tombul                                                        | 5             |
| 41. | (*) | QN                                                          | MG    | (+)      |     |         |         |                                                                        |               |
|     |     | Time of beginning of female flowering                       |       |          |     |         |         |                                                                        |               |
|     |     | very early                                                  |       |          |     |         |         | San Giovanni                                                           | 1             |
|     |     | early                                                       |       |          |     |         |         | Comen, Fertile de Coutard, Tonda di Giffoni                            | 2             |
|     |     | medium                                                      |       |          |     |         |         | Tonda Bianca, Tonda Gentile delle Langhe                               | 3             |
|     |     | late                                                        |       |          |     |         |         | Daviana, Lambert's Filbert, Morell, Segorbe                            | 4             |
|     |     | very late                                                   |       |          |     |         |         | Bergeri, Gunslebert, Merveille de Bollwiller                           | 5             |
| 42. | (*) | QN                                                          | MG    | (+)      |     |         |         |                                                                        |               |
|     |     | Time of beginning of male flowering                         |       |          |     |         |         |                                                                        |               |
|     |     | very early                                                  |       |          |     |         |         | Tonda Gentile delle Langhe                                             | 1             |
|     |     | early                                                       |       |          |     |         |         | Palaz                                                                  | 2             |
|     |     | medium                                                      |       |          |     |         |         | Negret                                                                 | 3             |
|     |     | late                                                        |       |          |     |         |         | Lambert's Filbert                                                      | 4             |
|     |     | very late                                                   |       |          |     |         |         | Morell                                                                 | 5             |
| 43. | (*) | QN                                                          | MG    |          | (c) |         |         |                                                                        |               |
|     |     | Time of female flowering compared to time of male flowering |       |          |     |         |         |                                                                        |               |
|     |     | earlier                                                     |       |          |     |         |         | Negret, San Giovanni, Tonda Romana                                     | 1             |
|     |     | same time                                                   |       |          |     |         |         | Merveille de Bollwiller, Morell                                        | 2             |
|     |     | later                                                       |       |          |     |         |         | Bergeri, Cosford, Tonda Gentile delle Langhe                           | 3             |
| 44. | (*) | QN                                                          | MG    |          | (b) |         |         |                                                                        |               |
|     |     | Time of beginning of leaf budburst                          |       |          |     |         |         |                                                                        |               |
|     |     | very early                                                  |       |          |     |         |         | San Giovanni                                                           | 1             |
|     |     | early                                                       |       |          |     |         |         | Tonda di Giffoni, Tonda Gentile delle Langhe                           | 2             |
|     |     | medium                                                      |       |          |     |         |         | Negret, Tonda Romana                                                   | 3             |
|     |     | late                                                        |       |          |     |         |         | Bergeri, Cosford                                                       | 4             |
|     |     | very late                                                   |       |          |     |         |         | Lambert's Filbert, Merveille de Bollwiller                             | 5             |

|     |                          | English |    | français |  | deutsch | español | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|-----|--------------------------|---------|----|----------|--|---------|---------|------------------------------------------------------------------------|---------------|
| 45. | (*)                      | QN      | MG | (+)      |  |         |         |                                                                        |               |
|     | Time of harvest maturity |         |    |          |  |         |         |                                                                        |               |
|     | very early               |         |    |          |  |         |         | Sant Pere                                                              | 1             |
|     | early                    |         |    |          |  |         |         | Tonda Gentile delle Langhe                                             | 2             |
|     | medium                   |         |    |          |  |         |         | Daviana, Morell, Tonda Romana                                          | 3             |
|     | late                     |         |    |          |  |         |         | Merveille de Bollwiller, Negret                                        | 4             |
|     | very late                |         |    |          |  |         |         | Bergeri                                                                | 5             |

## 8. Explanations on the Table of Characteristics

### 8.1 *Explanations covering several characteristics*

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

- (a) Observations should be made in dormant period.
- (b) Observations should be made in the central third of the branches.
- (c) Observations should be made when 50% of the inflorescence are in full flowering (pollen dehiscence or fully developed stigmas)
- (d) Observations should be made on fully developed leaves.
- (e) Observations should be made on normal developed fruits before drying off.
- (f) Observations should be made on at least 50 fruits with a humidity content of less than 8%.

### 8.2 *Explanations for individual characteristics*

#### Ad. 1: Plant: vigor

The vigor of the plants should be considered as the overall abundance of vegetative growth, after at least one satisfactory crop of fruit. It can either be assessed at the peak of vegetative growth in late summer, or during the dormant season considering shoot length and thickness.

#### Ad. 3: Plant: suckers

Observations on the emission of suckers should be made in early summer.

#### Ad. 6: Bud: shape



1  
conic



2  
ovoid



3  
globose

Ad. 10: Leaf blade: shape



1  
elliptic



2  
ovate



3  
obovate



4  
circular

Ad. 14: Involucre: constriction



1  
absent



9  
present

Ad. 15: Involucre: length in relation to length of nut



1  
shorter

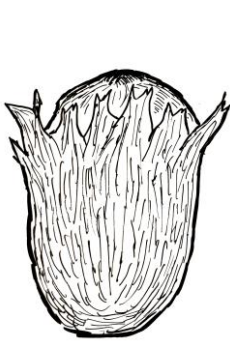


2  
same length



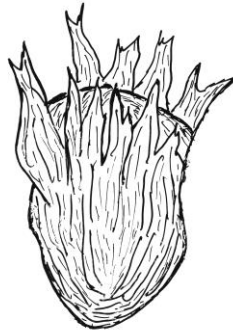
3  
longer

Ad. 16: Involucre: depth of indentations



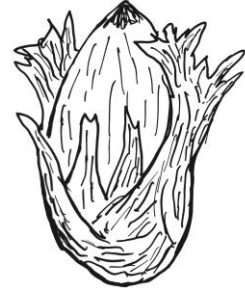
1

shallow



2

medium



3

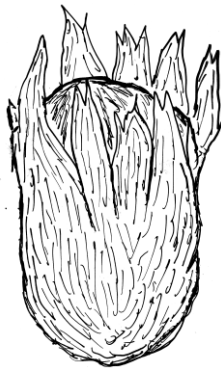
deep

Ad. 17: Involucre: serration



1

weak



2

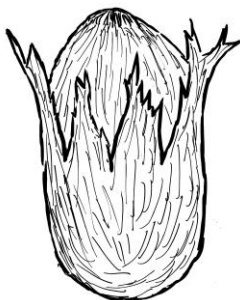
medium



3

strong

Ad. 18: Involucre: size of basal support



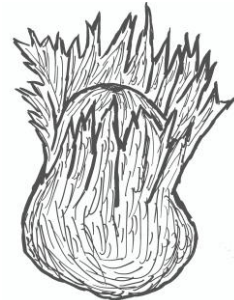
1

small



2

medium



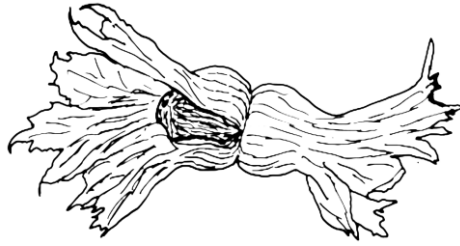
3

large

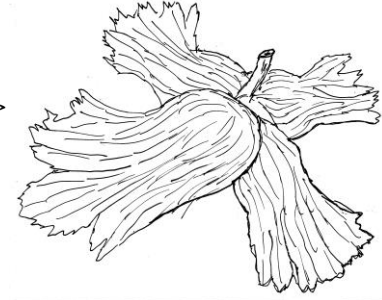
Ad. 19: Involucre: jointing of bracts



1  
absent



2  
on one side only



3  
on both sides

Ad. 21: Nut: shape in lateral view

|               |                   | ratio height/diameter                                                                             |                                                                                                      |                                                                                                     |
|---------------|-------------------|---------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
|               |                   | ←<br>low                                                                                          | medium                                                                                               | →<br>high                                                                                           |
| broadest part | ↑<br>above middle |                                                                                                   | <br>4<br>obovate   |                                                                                                     |
|               | at middle         | <br>1<br>oblate | <br>3<br>circular | <br>5<br>oblong |
|               | ↓<br>below middle |                                                                                                   | <br>2<br>ovate   | <br>6<br>conic |

Ad. 22: Nut: shape in cross-section



Ad. 25: Nut: shape of apex



1  
narrow acute



2  
broad acute



3  
obtuse



4  
truncate

Ad. 26: Nut: prominence of mucron



1  
weak



3  
strong

Ad. 27: Nut: size of pistil scar



1  
small



2  
medium



3  
large

Ad. 29: Nut: size of basal scar in relation to size of nut



1  
small

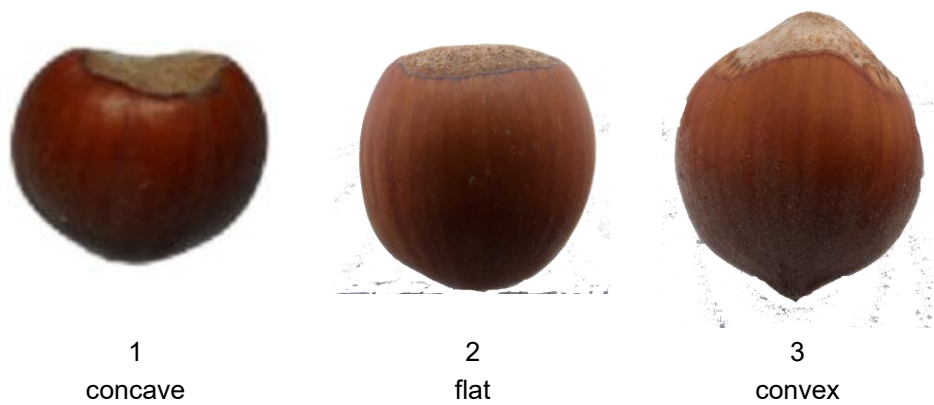


2  
medium



3  
large

Ad. 30: Nut: curvature of basal scar



Ad. 32: Kernel: shape in lateral view

|                                            |              | ratio height/diameter |                   |                 |
|--------------------------------------------|--------------|-----------------------|-------------------|-----------------|
|                                            |              | ←<br>low              | medium            | →<br>high       |
| ↑<br><br><br><br><br><br><br><br><br><br>↓ | above middle | <br>1<br>angular      | <br>4<br>obovate  |                 |
|                                            | at middle    |                       | <br>3<br>circular | <br>5<br>oblong |
|                                            | below middle |                       | <br>2<br>ovate    |                 |

Ad. 33: Kernel: shape of apex



1  
pointed



2  
rounded



3  
truncate

Ad. 34: Kernel: shape in cross-section



1  
oblong



2  
circular



3  
obovate

Ad. 35: Kernel: shape of base



1  
pointed



2  
rounded



3  
truncate

Ad. 37: Kernel: lateral groove



1  
absent



9  
present

Ad. 38: Kernel: presence of fiber



1  
absent or weak



3  
medium



5  
strong

Ad. 41: Time of beginning of female flowering

Time of beginning of female flowering is reached when 10% of stigmas are visible.

Ad. 42: Time of beginning of male flowering

Time of beginning of male flowering is reached when 10% of catkins are open.

Ad. 45: Time of harvest maturity

Time of harvest maturity is reached when 50% of the fruits have fallen off.

### 8.3 *Additional Explanations on the Table of Characteristic*

#### *Synonyms of example varieties*

| <u>Example variety</u>  | <u>Synonym(s)</u>                                                                                                   |
|-------------------------|---------------------------------------------------------------------------------------------------------------------|
| Apoldaer Zellernuss     | Apolda                                                                                                              |
| Bergeri                 | Bergère, Bergers Zellernuss, La Berger, Louis Berge                                                                 |
| Camponica               | Campanica, Tonda Napoletana, Tonda Tempestiva, Camponeca                                                            |
| Fertile de Coutard      | Barcelona, Castanyera, Grada di Viseu, Grande                                                                       |
| Gunslebert              | Grosse Gunslebener Zellernuss, Gunslebener Riesennuss, Gunslebert Zellernuss, Gunslebener Zellernuss                |
| Kargalak                | Imperiale de Trapezunt, Inperiale de Trèbizonde, Trapezunski, Trapezunter Kaiserhasel, Karidaty, Karidati           |
| Lambert's Filbert       | Longa de Spagna, Du Chilly, Filbert Cop, Kentish Cob, Korthaset Zellernuss, Lambert Filbert, Grosse Longue          |
| Merveille de Bollwiller | Bollwiller, Wissmanns Zellernuss, Wunder aus Bollwiller, Hallesche Riesennus, Zàzrak z Bollwilleru, Gèante du Halle |
| Morell                  | Focal, Falsetana                                                                                                    |
| Negret                  | Negreta                                                                                                             |
| Palaz                   | Pallaz                                                                                                              |
| Tombul                  | Mehmet Arif, Yaglii Findik, Giresum Yaglisi                                                                         |

## 9. Literature

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## 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

- |       |                |                                                                                     |                          |
|-------|----------------|-------------------------------------------------------------------------------------|--------------------------|
| 1.1.1 | Botanical name | <input type="text" value="Corylus avellana L."/>                                    | <input type="checkbox"/> |
| 1.1.2 | Common name    | <input type="text" value="Hazelnut"/>                                               |                          |
| 1.2.1 | Botanical name | <input type="text" value="Corylus colurna L."/>                                     | <input type="checkbox"/> |
| 1.2.2 | Common name    | <input type="text" value="Turkish Hazel"/>                                          |                          |
| 1.3.1 | Botanical name | <input type="text" value="Corylus americana Marshall"/>                             | <input type="checkbox"/> |
| 1.3.2 | Common name    | <input type="text" value="American filbert, American hazel, Hazelnut"/>             |                          |
| 1.4.1 | Botanical name | <input type="text" value="Hybrids between Corylus americana and Corylus avellana"/> | <input type="checkbox"/> |
| 1.4.2 | Common name    | <input type="text"/>                                                                |                          |
| 1.5.1 | Botanical name | <input type="text" value="Species (please indicate):"/>                             | <input type="checkbox"/> |
| 1.5.2 | Common name    | <input type="text"/>                                                                |                          |

2. Applicant

- |                                       |                      |
|---------------------------------------|----------------------|
| Name                                  | <input type="text"/> |
| Address                               | <input type="text"/> |
| Telephone No.                         | <input type="text"/> |
| Fax No.                               | <input type="text"/> |
| E-mail address                        | <input type="text"/> |
| Breeder (if different from applicant) | <input type="text"/> |

3. Proposed denomination and breeder's reference

Proposed denomination (if available)

Breeder's reference

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

#4. Information on the breeding scheme and propagation of the variety

4.1 Breeding scheme

Variety resulting from:

4.1.1 Crossing

(a) controlled cross [ ]

(please state parent varieties)

(.....) x (.....)

female parent

male parent

(b) partially known cross [ ]

(please state known parent variety(ies))

(.....) x (.....)

female parent

male parent

(c) unknown cross [ ]

4.1.2 Mutation

(please state parent varieties)

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

4.1.3 Discovery and development

(please state where and when discovered and how developed)

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

4.1.4 Other

(Please provide details)

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

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

4.2 Method of propagating the variety

4.2.1 Vegetative propagation

- (a) Stool bed layering; budding and grafting (please indicate rootstock) [ ]  
(b) Other (state method) [ ]

4.2.2 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              |
| <b>5.1</b><br><b>(10)</b>                                                                                                                                                              | <b>Leaf blade: shape</b>                              |                                                                          |                   |
|                                                                                                                                                                                        | elliptic                                              | Merveille de Bollwiller                                                  | 1 [ ]             |
|                                                                                                                                                                                        | ovate                                                 | Lambert's Filbert                                                        | 2 [ ]             |
|                                                                                                                                                                                        | obovate                                               | Tonda di Giffoni                                                         | 3 [ ]             |
|                                                                                                                                                                                        | circular                                              | Segorbe                                                                  | 4 [ ]             |
| <b>5.2</b><br><b>(15)</b>                                                                                                                                                              | <b>Involucre: length in relation to length of nut</b> |                                                                          |                   |
|                                                                                                                                                                                        | shorter                                               | Tonda Bianca                                                             | 1 [ ]             |
|                                                                                                                                                                                        | same length                                           | Cosford, Fertile de Coutard, Merveille de Bollwiller                     | 2 [ ]             |
|                                                                                                                                                                                        | longer                                                | Kargalak, Lambert's Filbert, Segorbe, Tombul, Tonda Gentile delle Langhe | 3 [ ]             |
| <b>5.3</b><br><b>(16)</b>                                                                                                                                                              | <b>Involucre: depth of indentations</b>               |                                                                          |                   |
|                                                                                                                                                                                        | shallow                                               | Lambert's Filbert, Tombul                                                | 1 [ ]             |
|                                                                                                                                                                                        | medium                                                | Fertile de Coutard, Tonda Gentile delle Langhe                           | 2 [ ]             |
|                                                                                                                                                                                        | deep                                                  | Gunslebert                                                               | 3 [ ]             |
| <b>5.4</b><br><b>(20)</b>                                                                                                                                                              | <b>Nut: size</b>                                      |                                                                          |                   |
|                                                                                                                                                                                        | very small                                            | Sivri                                                                    | 1 [ ]             |
|                                                                                                                                                                                        | small                                                 | Negret, Tombul, Tonda Gentile delle Langhe                               | 2 [ ]             |
|                                                                                                                                                                                        | medium                                                | Morell, Segorbe, Tonda di Giffoni                                        | 3 [ ]             |
|                                                                                                                                                                                        | large                                                 | Fertile de Coutard, Merveille de Bollwiller                              | 4 [ ]             |
|                                                                                                                                                                                        | very large                                            | Apoldaer Zellernuss, Bergeri, Ennis                                      | 5 [ ]             |
| <b>5.5</b><br><b>(21)</b>                                                                                                                                                              | <b>Nut: shape in lateral view</b>                     |                                                                          |                   |
|                                                                                                                                                                                        | oblate                                                | Kargalak                                                                 | 1 [ ]             |
|                                                                                                                                                                                        | ovate                                                 | Imperatrice Eugenie, Negret                                              | 2 [ ]             |
|                                                                                                                                                                                        | circular                                              | Clark, Fertile de Coutard, Tonda Gentile delle Langhe                    | 3 [ ]             |
|                                                                                                                                                                                        | obovate                                               | Butler                                                                   | 4 [ ]             |
|                                                                                                                                                                                        | conic                                                 | Ennis, Jean's, Merveille de Bollwiller                                   | 5 [ ]             |
|                                                                                                                                                                                        | oblong                                                | Cosford, Lambert's Filbert                                               | 6 [ ]             |
| <b>5.6</b><br><b>(22)</b>                                                                                                                                                              | <b>Nut: shape in cross-section</b>                    |                                                                          |                   |
|                                                                                                                                                                                        | elliptic                                              | Lambert's Filbert, Negret                                                | 1 [ ]             |
|                                                                                                                                                                                        | circular                                              | Merveille de Bollwiller, Tonda Romana                                    | 2 [ ]             |
|                                                                                                                                                                                        | angular                                               | Tonda Gentile delle Langhe                                               | 3 [ ]             |
|                                                                                                                                                                                        | transverse oblong                                     | Gunslebert                                                               | 4 [ ]             |

| TECHNICAL QUESTIONNAIRE |                                              | Page {x} of {y}                              | Reference Number: |
|-------------------------|----------------------------------------------|----------------------------------------------|-------------------|
| Characteristics         | Example Varieties                            |                                              | Note              |
| <b>5.7<br/>(40)</b>     | <b>Nut: percentage of kernel</b>             |                                              |                   |
|                         | very low                                     | Merveille de Bollwiller                      | 1 [ ]             |
|                         | low                                          | Fertile de Coutard, Segorbe                  | 2 [ ]             |
|                         | medium                                       | Negret, Tonda Gentile delle Langhe           | 3 [ ]             |
|                         | high                                         | Daviana, Imperatrice Eugenie                 | 4 [ ]             |
|                         | very high                                    | Cosford, Tombul                              | 5 [ ]             |
| <b>5.8<br/>(41)</b>     | <b>Time of beginning of female flowering</b> |                                              |                   |
|                         | very early                                   | San Giovanni                                 | 1 [ ]             |
|                         | early                                        | Comen, Fertile de Coutard, Tonda di Giffoni  | 2 [ ]             |
|                         | medium                                       | Tonda Bianca, Tonda Gentile delle Langhe     | 3 [ ]             |
|                         | late                                         | Daviana, Lambert's Filbert, Morell, Segorbe  | 4 [ ]             |
|                         | very late                                    | Bergeri, Gunslebert, Merveille de Bollwiller | 5 [ ]             |
| <b>5.9<br/>(42)</b>     | <b>Time of beginning of male flowering</b>   |                                              |                   |
|                         | very early                                   | Tonda Gentile delle Langhe                   | 1 [ ]             |
|                         | early                                        | Palaz                                        | 2 [ ]             |
|                         | medium                                       | Negret                                       | 3 [ ]             |
|                         | late                                         | Lambert's Filbert                            | 4 [ ]             |
|                         | very late                                    | Morell                                       | 5 [ ]             |
| <b>5.10<br/>(45)</b>    | <b>Time of harvest maturity</b>              |                                              |                   |
|                         | very early                                   | Sant Pere                                    | 1 [ ]             |
|                         | early                                        | Tonda Gentile delle Langhe                   | 2 [ ]             |
|                         | medium                                       | Daviana, Morell, Tonda Romana                | 3 [ ]             |
|                         | late                                         | Merveille de Bollwiller, Negret              | 4 [ ]             |
|                         | very late                                    | Bergeri                                      | 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 <b>similar</b> variety(ies) | Describe the expression of the characteristic(s) for <b>your</b> candidate variety |
|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| <i>Example</i>                                                    | <i>Nut: size</i>                                                                        | <i>small</i>                                                                         | <i>large</i>                                                                       |

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|          |
|----------|
| 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]