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| |  |  |  | | --- | --- | --- | |  |  | **E** | |  |  |  | |  | 75 | |  | | --- | | **TG/337/1** | | **ORIGINAL:** English | | **DATE:** 2021-10-26 | | | **INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS** | | | |  | Geneva |  | |  |  |  | |  |  |  | |  | |  | | --- | |  | | **PISTACHIO** | |  | | |  | | --- | |  | | |  | | --- | | UPOV Code(s): PISTA\_VER | | |  | | |  | | |  |  | | --- | --- | | |  | | --- | | *Pistacia vera* L. | | |  | | |  | | |  | | --- | | \* | | |  |  |  | | |  | | --- | | **GUIDELINES** | |  | | **FOR THE CONDUCT OF TESTS** | |  | | **FOR DISTINCTNESS, UNIFORMITY AND STABILITY** | | | | | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  | | --- | | Alternative names:\* | | | | | | | |  | | --- | |  | | | | | | | *Botanical name* | *English* | *French* | *German* | *Spanish* | | |  | | --- | | *Pistacia vera* L. | | |  | | --- | | Pistachio,  Green-almond | | |  | | --- | | Pistachier, Pistache,  Pistachier cultivé | | |  | | --- | | Echte Pistazie, Pistazie, Pistazienbaum | | |  | | --- | | Alfónsigo, Pistachero | | | | | |  |  |  | | 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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| |  |  | | --- | --- | | TABLE OF CONTENTS | PAGE | |  |  | | |  |  |  | | --- | --- | --- | | 1. | SUBJECT OF THESE TEST GUIDELINES.......................................................................................................... | [3](#Section1) | |  |  |  | | 2. | MATERIAL REQUIRED......................................................................................................................................... | [3](#Section2) | |  |  |  | | 3. | METHOD OF EXAMINATION................................................................................................................................ | [3](#Section3) | |  |  |  | |  | |  |  |  | | --- | --- | --- | | 3.1 | Number of Growing Cycles........................................................................................................................ | [3](#Section3-1) | | 3.2 | Testing Place............................................................................................................................................. | [3](#Section3-2) | | 3.3 | Conditions for Conducting the Examination............................................................................................... | [3](#Section3-3) | | 3.4 | Test Design................................................................................................................................................ | [4](#Section3-4) | | 3.5 | Additional Tests......................................................................................................................................... | [4](#Section3-5) | | | |  |  |  | | 4. | ASSESSMENT OF DISTINCTNESS, UNIFORMITY AND STABILITY................................................................. | [4](#Section4) | |  |  |  | |  | |  |  |  | | --- | --- | --- | | 4.1 | Distinctness............................................................................................................................................... | [4](#Section4-1) | | 4.2 | Uniformity.................................................................................................................................................. | [5](#Section4-2) | | 4.3 | Stability...................................................................................................................................................... | [5](#Section4-3) | | | |  |  |  | | 5. | GROUPING OF VARIETIES AND ORGANIZATION OF THE GROWING TRIAL................................................ | [6](#Section5) | |  |  |  | | 6. | INTRODUCTION TO THE TABLE OF CHARACTERISTICS................................................................................ | [6](#Section6) | |  |  |  | |  | |  |  |  | | --- | --- | --- | | 6.1 | Categories of Characteristics..................................................................................................................... | [6](#Section6-1) | | 6.2 | States of Expression and Corresponding Notes........................................................................................ | [6](#Section6-2) | | 6.3 | Types of Expression.................................................................................................................................. | [6](#Section6-3) | | 6.4 | Example Varieties...................................................................................................................................... | [7](#Section6-4) | | 6.5 | Legend....................................................................................................................................................... | [7](#Section6-5) | | | |  |  |  | | 7. | TABLE OF CHARACTERISTICS/TABLEAU DES CARACTÈRES/MERKMALSTABELLE/TABLA DE CARACTERES...................................................................................................................................................... | [8](#Section7) | |  |  |  | | 8. | EXPLANATIONS ON THE TABLE OF CHARACTERISTICS............................................................................... | [17](#Section8) | |  | |  |  |  | | --- | --- | --- | | 8.1 | Explanations covering several characteristics........................................................................................... | [17](#Section8-1) | | |  | | --- | | 8.2 | | Explanations for individual characteristics................................................................................................. | [18](#Section8-2) | | | |  |  |  | | 9. | LITERATURE......................................................................................................................................................... | [23](#Section9) | |  |  |  | | 10. | TECHNICAL QUESTIONNAIRE............................................................................................................................ | [24](#Section10) | |  |  |  | |  | |  | | --- | |  | |  | | | |

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| --- | --- |
| 1. | Subject of these Test Guidelines |
|  |  |
| 1.1 | |  | | --- | | These Test Guidelines apply to all varieties of *Pistacia vera* L. | |
|  |  |
| 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”. | |

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| 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 plants on their own roots or grafted plants on a rootstock specified by the testing authority. | |
|  |  |
| 2.3 | |  | | --- | | The minimum quantity of plant material, to be supplied by the applicant, should be: | |
|  |  |
|  | |  | | --- | | 5 plants on their own roots or,  5 plants on a rootstock specified by the testing authority. | |
|  |  |
| 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. | |

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| 3. | Method of Examination |
|  |  |
| *3.1* | *Number of Growing Cycles* |
|  |  |
| |  | | --- | | 3.1.1 | | For female varieties, the minimum duration of tests should normally be two independent growing cycles. The two independent growing cycles may be observed from a single planting, examined in two separate growing cycles. |
|  |  |
| |  | | --- | | 3.1.2 | | |  | | --- | | For male varieties, the minimum duration of tests is one observation cycle provided there is sufficient flowering. | |
|  |  |
| |  | | --- | | 3.1.3 | | |  | | --- | | In particular, it is essential that the plants of female varieties produce a satisfactory crop of fruit in each of the two growing cycles. | |
|  |  |
| |  | | --- | | 3.1.4 | | 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. |
|  |  |
| |  | | --- | | 3.3.2 | | |  | | --- | | For female varieties, the competent authority should ensure that an appropriate male variety is available for adequate pollination. | |
|  |  |

|  |  |
| --- | --- |
| *3.4* | *Test Design* |
|  |  |
| 3.4.1 | |  | | --- | | Each test should be designed to result in a total of at least 5 plants. | |
|  |  |
| |  | | --- | | 3.4.2 | | |  | | --- | | The design of the tests should be such that plants or parts of plants may be removed for measurement or counting without prejudice to the observations which must be made up to the end of the growing cycle. | |
|  |  |
| |  | | --- | |  |   *3.5* | *Additional Tests* |
|  |  |
|  | Additional tests, for examining relevant characteristics, may be established. |

|  |  |
| --- | --- |
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|  |  |
| 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 5 plants or parts of plants taken from each of 5 plants and any other observations made on all plants in the test, disregarding any off-type plants. | |
|  |  |
|  | |  | | --- | | In the case of observations of parts taken from single plants, the number of parts to be taken from each of the plants should be 6. | |
|  |  |
| 4.1.5 | Method of Observation |
|  |  |
|  | The recommended method of observing the characteristic for the purposes of distinctness is indicated by the following key in the Table of Characteristics (see document TGP/9 “Examining Distinctness”, Section 4 “Observation of characteristics”): |
|  |  |
|  | |  | | --- | | MG: single measurement of a group of plants or parts of plants  MS: measurement of a number of individual plants or parts of plants  VG: visual assessment by a single observation of a group of plants or parts of plants  VS: visual assessment by observation of individual plants or parts of plants | |
|  |  |

|  |  |
| --- | --- |
|  | Type of observation: visual (V) or measurement (M) |
|  |  |
|  | “Visual” observation (V) is an observation made on the basis of the expert’s judgment. For the purposes of this document, “visual” observation refers to the sensory observations of the experts and, therefore, also includes smell, taste and touch. Visual observation includes observations where the expert uses reference points (e.g. diagrams, example varieties, side-by-side comparison) or non-linear charts (e.g. color charts). Measurement (M) is an objective observation against a calibrated, linear scale e.g. using a ruler, weighing scales, colorimeter, dates, counts, etc. |
|  |  |
|  | |  | | --- | | Type of record: for a group of plants (G) or for single, individual plants (S) | |
|  |  |
|  | |  | | --- | | For the purposes of distinctness, observations may be recorded as a single record for a group of plants or parts of plants (G), or may be recorded as records for a number of single, individual plants or parts of plants (S). In most cases, “G” provides a single record per variety and it is not possible or necessary to apply statistical methods in a plant-by-plant analysis for the assessment of distinctness. | |
|  |  |
|  | In cases where more than one method of observing the characteristic is indicated in the Table of Characteristics (e.g. VG/MG), guidance on selecting an appropriate method is provided in document TGP/9, Section 4.2. |
|  |  |
| *4.2* | *Uniformity* |
|  |  |
| 4.2.1 | It is of particular importance for users of these Test Guidelines to consult the General Introduction prior to making decisions regarding uniformity. However, the following points are provided for elaboration or emphasis in these Test Guidelines: |
|  |  |
| |  | | --- | | 4.2.2 | | |  | | --- | | These Test Guidelines have been developed for the examination of vegetatively propagated varieties. For varieties with other types of propagation, the recommendations in the General Introduction and document TGP/13 "Guidance for new types and species" Section 4.5 "Testing Uniformity" should be followed. | |
|  |  |
| 4.2.3 | |  | | --- | | For the assessment of uniformity of vegetatively propagated varieties, a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 5 plants, no off-types are allowed. | |
|  |  |
| *4.3* | *Stability* |
|  |  |
| 4.3.1 | In practice, it is not usual to perform tests of stability that produce results as certain as those of the testing of distinctness and uniformity. However, experience has demonstrated that, for many types of variety, when a variety has been shown to be uniform, it can also be considered to be stable. |
|  |  |
| 4.3.2 | Where appropriate, or in cases of doubt, stability may be further examined by testing a new plant stock to ensure that it exhibits the same characteristics as those shown by the initial material supplied. |

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| 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) | |  | |  | | --- | | Plant: sex (characteristic 1) | | | |  | | --- | | (b) | |  | |  | | --- | | Plant: growth habit (characteristic 3) | | | |  | | --- | | (c) | |  | |  | | --- | | Terminal leaflet: shape of apex (characteristic 12) | | | |  | | --- | | (d) | |  | |  | | --- | | Nut: shape in lateral view (characteristic 24) | | | |  | | --- | | (e) | |  | |  | | --- | | Time of beginning of vegetative bud burst (characteristic 35) | | | |  | | --- | | (f) | |  | |  | | --- | | Time of beginning of flowering (characteristic 36) | | | |  | | --- | | (g) | |  | |  | | --- | | Time of harvest maturity (characteristic 37) | | | |  |  | | --- | --- | | |  | | --- | |  | | | | | |
| 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”. |

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| --- | --- |
|  |  |
|  |  |
| 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. |

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| --- | --- |
| *6.4* | *Example Varieties* |
|  | Where appropriate, example varieties are provided to clarify the states of expression of each characteristic. |

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| --- | --- |
| *6.5* | *Legend* |
|  |  |
| |  |  | English | | français | | deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  | | --- | | **1** | | |  | | --- | | **2** | | |  | | --- | | **3** | | |  | | --- | | **4** | | |  | | --- | | **5** | | |  | | --- | | **6** | | |  | | --- | | **7** | | | | | |  |  | |  | | --- | | **Name of characteristics in English** | | | |  | | --- | | **Nom du caractère en français** | | | |  | | --- | | **Name des Merkmals auf Deutsch** | | |  | | --- | | **Nombre del carácter en español** | |  |  | |  |  | |  | | --- | | states of expression | | | |  | | --- | | types d’expression | | | |  | | --- | | Ausprägungsstufen | | |  | | --- | | tipos de expresión | | |  | | --- | |  | |  | |  |  |  |  |  |  |  |  |  |  | | |
| |  |  |  |  | | --- | --- | --- | --- | | 1 | Characteristic number | | | |  |  |  |  | | 2 | (\*) | Asterisked characteristic | – see Chapter 6.1.2 | |  |  |  |  | | 3 | Type of expression | | | |  | QL | Qualitative characteristic | – see Chapter 6.3 | |  | QN | Quantitative characteristic | – see Chapter 6.3 | |  | PQ | Pseudo-qualitative characteristic | – see Chapter 6.3 | |  |  |  |  | | 4 | Method of observation (and type of plot, if applicable) | | | |  | MG, MS, VG, VS | | – see Chapter 4.1.5 | |  |  |  |  | | 5 | |  | | --- | | (+) | | |  |  | | --- | --- | | |  | | --- | | See Explanations on the Table of Characteristics in Chapter 8.2 | | | | |  |  |  |  | | 6 | |  | | --- | | (a)-(d) | | |  |  | | --- | --- | | |  | | --- | | See Explanations on the Table of Characteristics in Chapter 8.1 | | | | |  |  |  |  | | 7 | |  | | --- | | Not applicable | | | | | |
|  |  |
| |  | | --- | | (f) = female varieties  (m) = male varieties | | |

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

|  |  | English | | français | | deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1.** | **(\*)** | **QL** | **VG** |  |  |  | | | |
|  |  | |  | | --- | | **Plant: sex** | | | |  | | --- | | **Plante : sexe** | | | |  | | --- | | **Pflanze: Geschlecht** | | |  | | --- | | **Planta: sexo** | |  |  |
|  |  | female | | femelle | | weiblich | femenino | Kerman (f), Larnaka (f) | 1 |
|  |  | male | | mâle | | männlich | masculino | Peters (m), Randy (m) | 2 |
| **2.** | **(\*)** | **QN** | **VG** | **(+)** | **(a)** |  | | | |
|  |  | |  | | --- | | **Plant: vigor** | | | |  | | --- | | **Plante : vigueur** | | | |  | | --- | | **Pflanze: Wuchsstärke** | | |  | | --- | | **Planta: vigor** | |  |  |
|  |  | weak | | faible | | gering | débil | Avidon (f), Bronte (f) | 1 |
|  |  | medium | | moyenne | | mittel | medio | Kerman (f) | 2 |
|  |  | strong | | forte | | stark | fuerte | Boundoky (f), Mateur (f) | 3 |
| **3.** | **(\*)** | **PQ** | **VG** | **(+)** | **(a)** |  | | | |
|  |  | |  | | --- | | **Plant: growth habit** | | | |  | | --- | | **Plante : port** | | | |  | | --- | | **Pflanze: Wuchsform** | | |  | | --- | | **Planta: hábito de crecimiento** | |  |  |
|  |  | upright | | dressé | | aufrecht | erecto | Ouleimy (f) | 1 |
|  |  | spreading | | étalé | | breitwüchsig | extendido | Larnaka (f) | 2 |
|  |  | drooping | | retombant | | überhängend | colgante | Insolia (f), Joley (f) | 3 |
| **4.** | **(\*)** | **QN** | **VG** | **(+)** |  |  | | | |
|  |  | |  | | --- | | **Plant: density of canopy** | | | |  | | --- | | **Plante : densité du feuillage** | | | |  | | --- | | **Pflanze: Dichte des Laubes** | | |  | | --- | | **Planta: densidad de la copa** | |  |  |
|  |  | sparse | | lâche | | locker | laxa | Mateur (f) | 1 |
|  |  | medium | | moyenne | | mittel | media | Kerman (f) | 2 |
|  |  | dense | | dense | | dicht | densa |  | 3 |
| **5.** |  | **QN** | **VG** |  |  |  | | | |
|  |  | |  | | --- | | **Young shoot: intensity of anthocyanin coloration of growing tip** | | | |  | | --- | | **Jeune pousse : pigmentation anthocyanique du sommet de croissance** | | | |  | | --- | | **Jungtrieb: Intensität der Anthocyanfärbung der Triebspitze** | | |  | | --- | | **Rama joven: intensidad de la pigmentación antociánica del ápice de crecimiento** | |  |  |
|  |  | absent or very weak | | absente ou très faible | | fehlend oder sehr gering | ausente o muy débil | Mateur (f) | 1 |
|  |  | weak | | faible | | gering | débil | Chico (m), Randy (m) | 2 |
|  |  | medium | | moyenne | | mittel | media | Enk (m), Napoletana (f) | 3 |
|  |  | strong | | forte | | stark | fuerte | Cerasola (f) | 4 |
|  |  | very strong | | très forte | | sehr stark | muy fuerte | 40A (m) | 5 |

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| **6.** |  | **QN** | **VG** |  | **(b)** |  | | | |
|  |  | |  | | --- | | **Leaf: intensity of green color of upper side** | | | |  | | --- | | **Feuille : intensité de la couleur verte de la face supérieure** | | | |  | | --- | | **Blatt: Intensität der Grünfärbung der Oberseite** | | |  | | --- | | **Hoja: intensidad del color verde del haz** | |  |  |
|  |  | light | | claire | | hell | clara | Napoletana (f) | 1 |
|  |  | medium | | moyenne | | mittel | media | 502 (m), Larnaka (f) | 2 |
|  |  | dark | | foncée | | dunkel | oscura | Chico (m) | 3 |
| **7.** |  | **QN** | **MG/MS/VG** |  | **(b), (c)** |  | | | |
|  |  | |  | | --- | | **Leaf: length of petiole** | | | |  | | --- | | **Feuille : longueur du pétiole** | | | |  | | --- | | **Blatt: Länge des Blattstiels** | | |  | | --- | | **Hoja: longitud del pecíolo** | |  |  |
|  |  | very short | | très courte | | sehr kurz | muy corta | Bronte (f) | 1 |
|  |  | short | | courte | | kurz | corta | Ask (m), Sfax (f) | 2 |
|  |  | medium | | moyenne | | mittel | media | Greco (f), Mateur (f) | 3 |
|  |  | long | | longue | | lang | larga | Cerasola (f) | 4 |
|  |  | very long | | très longue | | sehr lang | muy larga | Chico (m), Enk (m),  Lost Hills (f) | 5 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **8.** |  | **QN** | **MG** |  | **(b)** |  | | | |
|  |  | |  | | --- | | **Leaf: predominant number of leaflets** | | | |  | | --- | | **Feuille : nombre prédominant de folioles** | | | |  | | --- | | **Blatt: vorwiegende Anzahl Blattfiedern** | | |  | | --- | | **Hoja: número predominante de folíolos** | |  |  |
|  |  | less than 6 | | moins de 6 | | weniger als 6 | menos de 6 | Aegina (f) | 1 |
|  |  | 6 to 10 | | 6 à 10 | | 6 bis 10 | 6 a 10 | Chico (m) | 2 |
|  |  | more than 10 | | plus de 10 | | mehr als 10 | más de 10 | Enk (m) | 3 |
| **9.** |  | **QN** | **MS/VG** |  | **(b), (c)** |  | | | |
|  |  | |  | | --- | | **Terminal leaflet: length** | | | |  | | --- | | **Foliole terminale : longueur** | | | |  | | --- | | **Endblattfieder: Länge** | | |  | | --- | | **Folíolo terminal: longitud** | |  |  |
|  |  | very short | | très courte | | sehr kurz | muy corta | 40A (m), Golden Hills (f) | 1 |
|  |  | very short to short | | très courte à courte | | sehr kurz bis kurz | muy corta a corta | Enk (m) | 2 |
|  |  | short | | courte | | kurz | corta |  | 3 |
|  |  | short to medium | | courte à moyenne | | kurz bis mittel | corta a media | Lost Hills (f) | 4 |
|  |  | medium | | moyenne | | mittel | media | Chico (m) | 5 |
|  |  | medium to long | | moyenne à longue | | mittel bis lang | media a larga | Bronte (f), Napoletana (f) | 6 |
|  |  | long | | longue | | lang | larga | Aegina (f) | 7 |
|  |  | long to very long | | longue à très longue | | lang bis sehr lang | larga a muy larga | Cerasola (f), Larnaka (f) | 8 |
|  |  | very long | | très longue | | sehr lang | muy larga |  | 9 |

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| **10.** |  | **QN** | **MS/VG** |  | **(b), (c)** |  | | | |
|  |  | |  | | --- | | **Terminal leaflet: width** | | | |  | | --- | | **Foliole terminale : largeur** | | | |  | | --- | | **Endblattfieder: Breite** | | |  | | --- | | **Folíolo terminal: anchura** | |  |  |
|  |  | very narrow | | très étroite | | sehr schmal | muy estrecha | Enk (m), Golden Hills (f) | 1 |
|  |  | very narrow to narrow | | très étroite à étroite | | sehr schmal bis schmal | muy estrecha a estrecha | 40A (m) | 2 |
|  |  | narrow | | étroite | | schmal | estrecha |  | 3 |
|  |  | narrow to medium | | étroite à moyenne | | schmal bis mittel | estrecha a media | Chico (m) | 4 |
|  |  | medium | | moyenne | | mittel | media | Lost Hills (f) | 5 |
|  |  | medium to broad | | moyenne à large | | mittel bis breit | media a ancha | Napoletana (f) | 6 |
|  |  | broad | | large | | breit | ancha | Greco (f) | 7 |
|  |  | broad to very broad | | large à très large | | breit bis sehr breit | ancha a muy ancha | Aegina (f) | 8 |
|  |  | very broad | | très large | | sehr breit | muy ancha | Larnaka (f) | 9 |
| **11.** |  | **QN** | **MS/VG** |  | **(b)** |  | | | |
|  |  | |  | | --- | | **Terminal leaflet: ratio length/width** | | | |  | | --- | | **Foliole terminale : rapport longueur/largeur** | | | |  | | --- | | **Endblattfieder: Verhältnis Länge/Breite** | | |  | | --- | | **Folíolo terminal: relación longitud/anchura** | |  |  |
|  |  | very low | | très bas | | sehr klein | muy baja | Mateur (f) | 1 |
|  |  | very low to low | | très bas à bas | | sehr klein bis klein | muy baja a baja |  | 2 |
|  |  | low | | bas | | klein | baja |  | 3 |
|  |  | low to medium | | bas à moyen | | klein bis mittel | baja a media | Kerman (f) | 4 |
|  |  | medium | | moyen | | mittel | media | Chico (m), Napoletana (f) | 5 |
|  |  | medium to high | | moyen à élevé | | mittel bis groß | media a alta | Lost Hills (f) | 6 |
|  |  | high | | élevé | | groß | alta | Golden Hills (f) | 7 |
|  |  | high to very high | | élevé à très élevé | | groß bis sehr groß | alta a muy alta | Larnaka (f) | 8 |
|  |  | very high | | très élevé | | sehr groß | muy alta | Enk (m), Sfax (f) | 9 |
| **12.** | **(\*)** | **PQ** | **VG** | **(+)** | **(b)** |  | | | |
|  |  | |  | | --- | | **Terminal leaflet: shape of apex** | | | |  | | --- | | **Foliole terminale : forme du sommet** | | | |  | | --- | | **Endblattfieder: Form der Spitze** | | |  | | --- | | **Folíolo terminal: forma del ápice** | |  |  |
|  |  | acute | | aigue | | spitz | aguda | Enk (m), Mateur (f) | 1 |
|  |  | obtuse | | obtuse | | stumpf | obtusa |  | 2 |
|  |  | rounded | | arrondie | | abgerundet | redondeada | Golden Hills (f) | 3 |
|  |  | truncate | | tronquée | | gerade | truncada | Insolia (f) | 4 |
|  |  | obcordate | | obcordée | | verkehrt herzförmig | obcordada |  | 5 |

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| **13.** | **(\*)** | **PQ** | **VG** | **(+)** | **(b)** |  | | | |
|  |  | |  | | --- | | **Terminal leaflet: shape of base** | | | |  | | --- | | **Foliole terminale : forme de la base** | | | |  | | --- | | **Endblattfieder: Form der Basis** | | |  | | --- | | **Folíolo terminal: forma de la base** | |  |  |
|  |  | acute | | aigue | | spitz | aguda | Aegina (f) | 1 |
|  |  | rounded | | arrondie | | abgerundet | redondeada | Lost Hills (f) | 2 |
|  |  | truncate | | tronquée | | gerade | truncada |  | 3 |
| **14.** |  | **QN** | **VG** | **(+)** | **(b)** |  | | | |
|  |  | |  | | --- | | **Terminal leaflet: asymmetry at base** | | | |  | | --- | | **Foliole terminale : asymétrie à la base** | | | |  | | --- | | **Endblattfieder: Asymmetrie an der Basis** | | |  | | --- | | **Folíolo terminal: asimetría en la base** | |  |  |
|  |  | absent or weak | | absente ou faible | | fehlend oder gering | ausente o débil | Lost Hills (f) | 1 |
|  |  | medium | | moyenne | | mittel | media | Aegina (f) | 2 |
|  |  | strong | | forte | | stark | fuerte |  | 3 |
| **15.** |  | **PQ** | **VG** |  |  |  | | | |
|  |  | |  | | --- | | **Only varieties with Plant: sex female: Flower bud: shape** | | | |  | | --- | | **Variétés avec Plante : sexe : femelle seulement** **: Bouton floral : forme** | | | |  | | --- | | **Nur Sorten mit Pflanze: Geschlecht: weiblich: Blütenknospe: Form** | | |  | | --- | | **Solo variedades con Planta: sexo: femenino: Botón floral: forma** | |  |  |
|  |  | ovate | | ovale | | eiförmig | oval | Sfax (f) | 1 |
|  |  | circular | | circulaire | | kreisförmig | circular |  | 2 |
|  |  | elliptic | | elliptique | | elliptisch | elíptica | Aegina (f) | 3 |
| **16.** |  | **PQ** | **VG** |  |  |  | | | |
|  |  | |  | | --- | | **Only varieties with Plant: sex female: Flower bud: color** | | | |  | | --- | | **Variétés avec Plante : sexe : femelle seulement** **: Bouton floral : couleur** | | | |  | | --- | | **Nur Sorten mit Pflanze: Geschlecht: weiblich: Blütenknospe: Farbe** | | |  | | --- | | **Solo variedades con Planta: sexo: femenino: Botón floral: color** | |  |  |
|  |  | light brown | | brun clair | | hellbraun | marrón claro | Bronte (f) | 1 |
|  |  | medium brown | | brun moyen | | mittelbraun | marrón medio | Aegina (f) | 2 |
|  |  | dark brown | | brun foncé | | dunkelbraun | marrón oscuro | Rashti (f) | 3 |
|  |  | reddish brown | | brun rougeâtre | | rötlichbraun | marrón rojizo | Mateur (f) | 4 |
| **17.** |  | **QN** | **VG** | **(+)** | **(d)** |  | | | |
|  |  | |  | | --- | | **Hull: dehiscence** | | | |  | | --- | | **Péricarpe : déhiscence** | | | |  | | --- | | **Hülse: Aufspringen** | | |  | | --- | | **Pellejo: dehiscencia** | |  |  |
|  |  | weak | | faible | | gering | débil | Kerman (f), Napoletana (f) | 1 |
|  |  | medium | | moyenne | | mittel | media | Mateur (f) | 2 |
|  |  | strong | | forte | | stark | fuerte | Avidon (f), Larnaka (f) | 3 |

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| **18.** | **(\*)** | **QN** | **VG** |  | **(d)** |  | | | |
|  |  | |  | | --- | | **Hull: prominence of tip** | | | |  | | --- | | **Péricarpe : proéminence du bec** | | | |  | | --- | | **Hülse: Ausbildung der Spitze** | | |  | | --- | | **Pellejo: prominencia de la punta** | |  |  |
|  |  | absent or weak | | nulle ou faible | | fehlend oder gering | ausente o débil | Kerman (f), Sfax (f) | 1 |
|  |  | medium | | moyenne | | mittel | media | Cerasola (f) | 2 |
|  |  | strong | | forte | | stark | fuerte | Aegina (f), Joley (f), Larnaka (f) | 3 |
| **19.** |  | **PQ** | **VG** | **(+)** | **(d)** |  | | | |
|  |  | |  | | --- | | **Hull: ground color** | | | |  | | --- | | **Péricarpe : couleur de fond** | | | |  | | --- | | **Hülse: Grundfarbe** | | |  | | --- | | **Pellejo: color de fondo** | |  |  |
|  |  | green white | | blanc-vert | | grünweiß | blanco verdoso | Aegina (f) | 1 |
|  |  | yellow green | | vert-jaune | | gelbgrün | verde amarillento | Kastel (f) | 2 |
|  |  | yellow | | jaune | | gelb | amarillo | Sfax (f) | 3 |
|  |  | yellow orange | | orangé-jaune | | gelborange | naranja amarillento | Larnaka (f) | 4 |
| **20.** |  | **QN** | **VG** | **(+)** | **(d)** |  | | | |
|  |  | |  | | --- | | **Hull: area of over color** | | | |  | | --- | | **Péricarpe : surface du lavis** | | | |  | | --- | | **Hülse: Anteil der Deckfarbe** | | |  | | --- | | **Pellejo: superficie del color superficial** | |  |  |
|  |  | absent or very small | | absente ou très petite | | fehlend oder sehr klein | ausente o muy pequeña | Sfax (f) | 1 |
|  |  | small | | petite | | klein | pequeña |  | 2 |
|  |  | medium | | moyenne | | mittel | media | Kerman (f) | 3 |
|  |  | large | | grande | | groß | grande |  | 4 |
|  |  | very large | | très grande | | sehr groß | muy grande | Aegina (f), Cerasola (f) | 5 |
| **21.** | **(\*)** | **QN** | **MS/VG** | **(+)** | **(d)** |  | | | |
|  |  | |  | | --- | | **Nut: length** | | | |  | | --- | | **Noix : longueur** | | | |  | | --- | | **Nuss: Länge** | | |  | | --- | | **Nuez: longitud** | |  |  |
|  |  | very short | | très courte | | sehr kurz | muy corta | Bronte (f), Sfax (f) | 1 |
|  |  | short | | courte | | kurz | corta |  | 2 |
|  |  | medium | | moyenne | | mittel | media | Mateur (f) | 3 |
|  |  | long | | longue | | lang | larga |  | 4 |
|  |  | very long | | très longue | | sehr lang | muy larga | Ouleimy (f) | 5 |
| **22.** | **(\*)** | **QN** | **MS/VG** | **(+)** |  |  | | | |
|  |  | |  | | --- | | **Nut: width** | | | |  | | --- | | **Noix : largeur** | | | |  | | --- | | **Nuss: Breite** | | |  | | --- | | **Nuez: anchura** | |  |  |
|  |  | very narrow | | très étroite | | sehr schmal | muy estrecha |  | 1 |
|  |  | narrow | | étroite | | schmal | estrecha |  | 2 |
|  |  | medium | | moyenne | | mittel | media | Cerasola (f) | 3 |
|  |  | broad | | large | | breit | ancha |  | 4 |
|  |  | very broad | | très large | | sehr breit | muy ancha | Kerman (f) | 5 |

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| **23.** | **(\*)** | **QN** | **MS/VG** | **(+)** |  |  | | | |
|  |  | |  | | --- | | **Nut: thickness** | | | |  | | --- | | **Noix : épaisseur** | | | |  | | --- | | **Nuss: Dicke** | | |  | | --- | | **Nuez: grosor** | |  |  |
|  |  | thin | | mince | | dünn | delgado | Aegina (f) | 1 |
|  |  | medium | | moyenne | | mittel | media | Cerasola (f) | 2 |
|  |  | thick | | épais | | dick | grueso | Ouleimy (f) | 3 |
| **24.** | **(\*)** | **PQ** | **VG** |  |  |  | | | |
|  |  | |  | | --- | | **Nut: shape in lateral view** | | | |  | | --- | | **Noix : forme en vue latérale** | | | |  | | --- | | **Nuss: Form in Seitenansicht** | | |  | | --- | | **Nuez: forma en vista lateral** | |  |  |
|  |  | ovate | | ovale | | eiförmig | oval | Kerman (f) | 1 |
|  |  | narrow elliptic | | elliptique étroite | | schmal elliptisch | elíptica estrecha | Napoletana (f) | 2 |
|  |  | broad elliptic | | elliptique large | | breit elliptisch | elíptica ancha | Sfax (f) | 3 |
| **25.** | **(\*)** | **PQ** | **VG** |  |  |  | | | |
|  |  | |  | | --- | | **Nut: shape of apex in lateral view** | | | |  | | --- | | **Noix : forme du sommet en vue latérale** | | | |  | | --- | | **Nuss: Form der Spitze in Seitenansicht** | | |  | | --- | | **Nuez: forma del ápice en vista lateral** | |  |  |
|  |  | acute | | aigue | | spitz | aguda | Aegina (f), Larnaka (f) | 1 |
|  |  | rounded | | arrondie | | abgerundet | redondeada | Bronte (f) | 2 |
|  |  | truncate | | tronquée | | gerade | truncada | Sfax (f) | 3 |
| **26.** | **(\*)** | **QL** | **VG** | **(+)** |  |  | | | |
|  |  | |  | | --- | | **Nut: presence of tip** | | | |  | | --- | | **Noix : présence d’un bec** | | | |  | | --- | | **Nuss: Vorhandensein einer Spitze** | | |  | | --- | | **Nuez: presencia de punta** | |  |  |
|  |  | absent | | absent | | fehlend | ausente | Kerman (f) | 1 |
|  |  | present | | présent | | vorhanden | presente | Larnaka (f) | 9 |
| **27.** |  | **QN** | **VG** | **(+)** |  |  | | | |
|  |  | |  | | --- | | **Nut: depression of shell near pedicel** | | | |  | | --- | | **Noix : dépression de la coque près du pédicelle** | | | |  | | --- | | **Nuss: Einsenkung der Schale am Blütenstiel** | | |  | | --- | | **Nuez: depresión de la cáscara junto al pedicelo** | |  |  |
|  |  | absent or shallow | | absente ou peu profonde | | fehlend oder flach | nula o poco profunda |  | 1 |
|  |  | medium | | moyenne | | mittel | medianamente profunda | Mateur (f) | 2 |
|  |  | deep | | profonde | | tief | profunda | Kerman (f) | 3 |

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| **28.** |  | **QN** | **VG** |  |  |  | | | |
|  |  | |  | | --- | | **Nut: intensity of brown color of the shell** | | | |  | | --- | | **Noix : intensité de la couleur brune de la coque** | | | |  | | --- | | **Nuss: Intensität der Braunfärbung der Schale** | | |  | | --- | | **Nuez: intensidad del color marrón de la cáscara** | |  |  |
|  |  | very light | | très claire | | sehr hell | muy clara | Kerman (f) | 1 |
|  |  | light | | claire | | hell | clara | Aegina (f) | 2 |
|  |  | medium | | moyenne | | mittel | media | Sirora (f) | 3 |
|  |  | dark | | foncée | | dunkel | oscura | Larnaka (f) | 4 |
|  |  | very dark | | très foncée | | sehr dunkel | muy oscura | Avidon (f) | 5 |
| **29.** |  | **QN** | **VG** |  |  |  | | | |
|  |  | |  | | --- | | **Nut: position of suture opening** | | | |  | | --- | | **Noix : position de l’ouverture de la suture** | | | |  | | --- | | **Nuss: Position der Nahtöffnung** | | |  | | --- | | **Nuez: posición de la apertura de la sutura** | |  |  |
|  |  | mainly dorsal side | | principalement face dorsale | | überwiegend Rückenseite | principalmente en la cara dorsal |  | 1 |
|  |  | equally dorsal and ventral side | | autant face dorsale que ventrale | | gleichermaßen Rücken- und Bauchseite | en las caras dorsal y ventral por igual | Kerman (f) | 2 |
|  |  | mainly ventral side | | principalement face ventrale | | überwiegend Bauchseite | principalmente en la cara ventral | Larnaka (f) | 3 |
| **30.** |  | **QN** | **VG** |  |  |  | | | |
|  |  | |  | | --- | | **Nut: width of suture opening** | | | |  | | --- | | **Noix : largeur de l’ouverture de la suture** | | | |  | | --- | | **Nuss: Breite der Nahtöffnung** | | |  | | --- | | **Nuez: anchura de la apertura de la sutura** | |  |  |
|  |  | narrow | | étroite | | schmal | estrecha | Bronte (f) | 1 |
|  |  | medium | | moyenne | | mittel | media | Mateur (f) | 2 |
|  |  | broad | | large | | breit | ancha | Aegina (f) | 3 |
| **31.** |  | **QL** | **VG** |  |  |  | | | |
|  |  | |  | | --- | | **Nut: position of pedicel scar in ventral view** | | | |  | | --- | | **Noix : position de la cicatrice du pédicelle en vue ventrale** | | | |  | | --- | | **Nuss: Position der Blütenstielnarbe in Bauchansicht** | | |  | | --- | | **Nuez: posición de la cicatriz pedicelar en vista ventral** | |  |  |
|  |  | symmetric | | symétrique | | symmetrisch | simétrica |  | 1 |
|  |  | asymmetric | | asymétrique | | asymmetrisch | asimétrica | Avdat (f) | 2 |
| **32.** |  | **QN** | **VG** | **(+)** |  |  | | | |
|  |  | |  | | --- | | **Nut: shell staining** | | | |  | | --- | | **Noix : coloration de la coque** | | | |  | | --- | | **Nuss: Färbung der Schale** | | |  | | --- | | **Nuez: tinción de la cáscara** | |  |  |
|  |  | weak | | faible | | gering | débil | Aegina (f) | 1 |
|  |  | medium | | moyenne | | mittel | media | Larnaka (f) | 2 |
|  |  | strong | | forte | | stark | fuerte |  | 3 |

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| **33.** | **(\*)** | **QN** | **MG** | **(+)** | **(d)** |  | | | |
|  |  | |  | | --- | | **Kernel: weight** | | | |  | | --- | | **Cerneau : poids** | | | |  | | --- | | **Kern: Gewicht** | | |  | | --- | | **Grano: peso** | |  |  |
|  |  | low | | faible | | gering | bajo | Avidon (f), Sfax (f) | 1 |
|  |  | low to medium | | faible à moyen | | gering bis mittel | bajo a medio |  | 2 |
|  |  | medium | | moyen | | mittel | medio | Larnaka (f), Mateur (f) | 3 |
|  |  | medium to high | | moyen à élevé | | mittel bis hoch | medio a alto |  | 4 |
|  |  | high | | élevé | | hoch | alto | Kastel (f), Kerman (f) | 5 |
| **34.** |  | **QN** | **VG** |  | **(d)** |  | | | |
|  |  | |  | | --- | | **Cotyledon: intensity of green color** | | | |  | | --- | | **Cotylédon : intensité de la couleur verte** | | | |  | | --- | | **Keimblatt: Intensität der Grünfärbung** | | |  | | --- | | **Cotiledón: intensidad del color verde** | |  |  |
|  |  | light | | claire | | hell | clara | Kerman (f), Lost Hills (f), Rashti (f) | 1 |
|  |  | medium | | moyenne | | mittel | media | Avidon (f), Sfax (f) | 2 |
|  |  | dark | | foncée | | dunkel | oscura | Larnaka (f), Ouleimy (f) | 3 |
| **35.** | **(\*)** | **QN** | **MG/VG** | **(+)** |  |  | | | |
|  |  | |  | | --- | | **Time of beginning of vegetative bud burst** | | | |  | | --- | | **Époque de début de débourrement** | | | |  | | --- | | **Zeitpunkt des Aufbruchs der vegetativen Knospe** | | |  | | --- | | **Época de inicio de la brotación de las yemas vegetativas** | |  |  |
|  |  | very early | | très précoce | | sehr früh | muy temprana | Aegina (f), Chico (m) | 1 |
|  |  | early | | précoce | | früh | temprana | Larnaka (f) | 2 |
|  |  | medium | | moyenne | | mittel | intermedia | Ask (m), Bronte (f) | 3 |
|  |  | late | | tardive | | spät | tardía | Joley (f) | 4 |
|  |  | very late | | très tardive | | sehr spät | muy tardía | Kerman (f), Peters (m) | 5 |
| **36.** | **(\*)** | **QN** | **MG/VG** | **(+)** |  |  | | | |
|  |  | |  | | --- | | **Time of beginning of flowering** | | | |  | | --- | | **Époque de début de floraison** | | | |  | | --- | | **Zeitpunkt des Blühbeginns** | | |  | | --- | | **Época de inicio de la floración** | |  |  |
|  |  | very early | | très précoce | | sehr früh | muy temprana | Avidon (f), Mateur (f) | 1 |
|  |  | early | | précoce | | früh | temprana | Larnaka (f) | 2 |
|  |  | medium | | moyenne | | mittel | intermedia | 02-18 (m), M-38 (m),  Sfax (f) | 3 |
|  |  | late | | tardive | | spät | tardía | Kastel (f) | 4 |
|  |  | very late | | très tardive | | sehr spät | muy tardía | Kerman (f), Peters (m) | 5 |

|  |  | English | | français | | deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
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| **37.** | **(\*)** | **QN** | **MG/VG** | **(+)** |  |  | | | |
|  |  | |  | | --- | | **Time of harvest maturity** | | | |  | | --- | | **Époque de maturité de récolte** | | | |  | | --- | | **Zeitpunkt der Erntereife** | | |  | | --- | | **Época de madurez para la cosecha** | |  |  |
|  |  | very early | | très précoce | | sehr früh | muy temprana | Avidon (f) | 1 |
|  |  | early | | précoce | | früh | temprana | Golden Hills (f) | 2 |
|  |  | medium | | moyenne | | mittel | intermedia | Napoletana (f) | 3 |
|  |  | late | | tardive | | spät | tardía |  | 4 |
|  |  | very late | | très tardive | | sehr spät | muy tardía | Kerman (f) | 5 |

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| |  |  |  |  | | --- | --- | --- | --- | | 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 the dormant season. | | | | |  |  |  |  | | |  | | --- | | (b) | | |  | | --- | | Observations should be made on fully developed leaves from the middle third of the current season shoots. | | | | |  |  |  |  | | |  | | --- | | (c) | | |  |  |  | | --- | --- | --- | | |  |  | | --- | --- | | 76 | a = Petiole  b = Terminal leaflet  c = Lateral leaflet | | | | | |  |  |  |  | | |  | | --- | | (d) | | |  | | --- | | Fruit:  77 | | | | |  |  |  |  | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| |  |  | | --- | --- | |  | | | |  | | --- | | *8.2* | | *Explanations for individual characteristics* | |  | | | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Ad. 2: Plant: vigor  The vigor of the plant should be considered as the overall abundance of vegetative growth.  Ad. 3: Plant: growth habit   |  |  |  | | --- | --- | --- | |  |  |  | | 1 | 2 | 3 | | upright | spreading | drooping | | | | | |  | | --- | | Ad. 4: Plant: density of canopy  The density of canopy of the plant should be considered as the overall abundance of branches during the dormant period. | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Ad. 12: Terminal leaflet: shape of apex   |  |  |  | | --- | --- | --- | | 78 | 79 | 80 | | 1 | 2 | 3 | | acute | obtuse | rounded |  |  |  | | --- | --- | | 81 | 82 | | 4 | 5 | | truncate | obcordate | | | | | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Ad. 13: Terminal leaflet: shape of base   |  |  |  | | --- | --- | --- | | 83 | 84 | 85 | | 1 | 2 | 3 | | acute | rounded | truncate | | | | | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Ad. 14: Terminal leaflet: asymmetry at base   |  |  |  | | --- | --- | --- | | 86 | 87 | 88 | | 1 | 2 | 3 | | absent or weak | medium | strong | | | | |

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| |  |  | | --- | --- | | |  | | --- | | Ad. 17: Hull: dehiscence  Hull dehiscence should be assessed as the degree of separation of the hull from the shell. It is assessed by visual inspection of the fruit and applying pressure with fingers:  1 - weak - it is difficult to separate hull from the nut when pressing with fingers,  2 - medium - hull separates easy from the nut, a layer of air between the hull and nut can be detected when pressing with fingers,  3 - strong - there are visible cracks on the hull and the hull separates very easy from the nut when pressing with fingers. | | | |  | | --- | | Ad. 19: Hull: ground color  The ground color is the first color to appear chronologically during the development of the fruit. | | | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Ad. 20: Hull: area of over color  The over color is the second color such as a flush which develops over time upon the ground color.     |  |  |  | | --- | --- | --- | | 89 | 90 | 91 | | 1 | 3 | 5 | | absent or very small | medium | very large | | | | |  |  |  | | --- | --- | --- | | Ad. 21: Nut: length   |  |  | | --- | --- | | 92 | a = Nut: length   b = Nut: width | | | | |  | | --- | | Ad. 22: Nut: width  See Ad. 21 | | |

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| |  |  | | --- | --- | | |  | | --- | | Ad. 23: Nut: thickness  93 | | | |  | | --- | | Ad. 26: Nut: presence of tip    94 | | | |  |  |  | | --- | --- | --- | | Ad. 27: Nut: depression of shell near pedicel   |  |  | | --- | --- | | 95 | a = Depression  b = Pedicel scar | | | | |  | | --- | | Ad. 32: Nut: shell staining  The shell staining should be assessed after drying. | | |

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| |  |  | | --- | --- | | |  | | --- | | Ad. 33: Kernel: weight  Crack 20 nuts at maturity for harvest and assess the average weight of the kernels. | | | |  | | --- | | Ad. 35: Time of beginning of vegetative bud burst  The time of beginning of vegetative bud burst is reached when 10% of terminal buds have enlarged and the bud scales have split showing the green of the leaves. | | | |  | | --- | | Ad. 36: Time of beginning of flowering  The time of beginning of flowering is reached:  - for female varieties - when 25% of flower buds are receptive for pollination (stigmas are visible),  - for male varieties - when flowers start spreading pollen. | | | |  | | --- | | Ad. 37: Time of harvest maturity  The time of harvest maturity is reached when 50% of fruits are mature. | | |
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| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  |  | | --- | --- | --- | | |  |  | | --- | --- | | 9. | Literature | | |  |  |  | | --- | | Couceiro, J.F.; Guerrero, J., Gijón MC., Pérez-López, D.; Moriana, A. and Rodriguez, M. 2013: El Cultivo del Pistacho. Ediciones Mundi-Prensa. Madrid, ES.  Ferguson, L., Polito, V., Kallsen, C., The pistachio tree; botany and physiology and factors that affect yield. <http://fruitsandnuts.ucdavis.edu/files/73683.pdf>, pp. 31 to 39.  IPGRI, 1997: Descriptors for Pistachio (*Pistacia vera* L.). International Plant Genetic Resources Institute, Rome, IT.  Kafkas, S., Kafkas, E., Perl-Treves R., 2002: Morphological diversity and a germplasm survey of three wild Pistacia species in Turkey. Genetic Resources and Crop Evolution 49, pp. 261 to 270.  Padulosi, S., Hadj-Hassan, A. editors, 2001: Project on Underutilized Mediterranean Species. Pistacia: towards a comprehensive documentation of distribution and use of its genetic diversity in Central & West Asia, North Africa and Mediterranean Europe. Report of the IPGRI Workshop, 14-17 December 1998, Irbid, JO. | | |

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| |  |  | | --- | --- | | 10. | Technical Questionnaire | |
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| |  |  |  | | --- | --- | --- | | TECHNICAL QUESTIONNAIRE | Page {x} of {y} | Reference Number: | |
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| |  |  | | --- | --- | |  | Application date: (not to be filled in by the applicant) | | TECHNICAL QUESTIONNAIRE to be completed in connection with an application for plant breeders' rights | | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  |  |  |  | | 1. | Subject of the Technical Questionnaire | | | | |  |  |  |  |  | |  | |  | | --- | | 1.1.1 | | Botanical name | |  | | --- | | *Pistacia vera* L. | | |  | | --- | |  |   […] | |  |  |  |  |  | |  | |  | | --- | | 1.1.2 | | Common name | |  | | --- | | Pistachio, Green-almond | |  | |  |  |  | |  | | --- | |  | |  | |  | |  | | --- | | 1.2 | | |  | | --- | | Interspecific hybrid (please specify): | |  | […] | |  |  |  |  |  | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  |  |  |  | | 2. | Applicant | | | | |  |  |  |  |  | |  | Name | |  |  | |  |  |  |  |  | |  | Address | |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  |  | |  | Telephone No. | |  |  | |  |  |  |  |  | |  | Fax No. | |  |  | |  |  |  |  |  | |  | E-mail address | |  |  | |  |  |  |  |  | |  | Breeder (if different from | |  |  | |  | applicant) | |  |  | |  |  |  |  |  | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  |  |  |  | | 3. | Proposed denomination and breeder's reference | | | | |  |  |  |  |  | |  | Proposed denomination | |  |  | |  | (if available) | |  |  | |  |  |  |  |  | |  | Breeder's reference | |  |  | |  |  |  |  |  | |

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| |  |  |  |  |  | | --- | --- | --- | --- | --- | | TECHNICAL QUESTIONNAIRE | | | Page {x} of {y} | Reference Number: | |  | | | | | | |  | | --- | | #4. | | Information on the breeding scheme and propagation of the variety | | | | |  |  |  | | | |  | 4.1 | Breeding scheme | | | |  | Variety resulting from: | | | | |  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | |  | | --- | | 4.1.1 | | |  | | --- | | Crossing | |  | | |  | | --- | | (a) | | |  | | --- | | controlled cross | | [ ] | |  | |  | | --- | | (please state parent variety)  (…………………..……………..…)                          x        (……………..…………………..…)  female parent                                                                     male parent | | | | |  | | --- | | (b) | | |  | | --- | | partially known cross | | [ ] | |  | |  | | --- | | (please state known parent variety(ies))  (…………………..……………..…)                          x        (……………..…………………..…)  female parent                                                                     male parent | | | | |  | | --- | | (c) | | |  | | --- | | unknown cross | | [ ] | |  |  | | | |  | | --- | | 4.1.2 | | |  | | --- | | Mutation  (please state parent variety) | | [ ] | |  |  | | |  |  | | | |  | | --- | | 4.1.3 | | |  | | --- | | Discovery and development  (please state where and when discovered and how developed) | | [ ] | |  |  | | |  |  | | | |  | | --- | | 4.1.4 | | Other (Please provide details) | [ ] | |  |  | | |  |  | | | | | | |

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| |  |  |  | | --- | --- | --- | |  |  |  | |  | 4.2 | Method of propagating the variety | |  | |  |  |  | | --- | --- | --- | | |  | | --- | | 4.2.1 | | |  | | --- | | Vegetative propagation | |  | | |  | | --- | | (a) | | |  | | --- | | Cuttings | | [ ] | | |  | | --- | | (b) | | |  | | --- | | *In vitro* propagation | | [ ] | | |  | | --- | | (c) | | |  | | --- | | Budding or grafting | | [ ] | | |  | | --- | | (d) | | |  | | --- | | Other (state method) | | [ ] | |  |  |  | |  |  |  | |  |  |  | | |  | | --- | | 4.2.2 | | Other (Please provide details) | [ ] | |  |  |  | |  |  |  | |  |  |  | | | |  | |  |  | | --- | --- | | |  | | --- | |  | | | | |

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| |  |  |  |  | | --- | --- | --- | --- | | 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 |
| --- | --- | --- | --- |
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| |  | | --- | | **5.1** |  |  | | --- | | **(1)** | | |  | | --- | | **Plant: sex** | |  |  |
|  | |  | | --- | | female | | |  | | --- | | Kerman (f), Larnaka (f) | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | male | | |  | | --- | | Peters (m), Randy (m) | | |  | | --- | | 2 [   ] | |
|  |  |  |  |
|  |  |  |  |
| |  | | --- | | **5.2** |  |  | | --- | | **(3)** | | |  | | --- | | **Plant: growth habit** | |  |  |
|  | |  | | --- | | upright | | |  | | --- | | Ouleimy (f) | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | spreading | | |  | | --- | | Larnaka (f) | | |  | | --- | | 2 [   ] | |
|  | |  | | --- | | drooping | | |  | | --- | | Insolia (f), Joley (f) | | |  | | --- | | 3 [   ] | |
|  |  |  |  |
|  |  |  |  |
| |  | | --- | | **5.3** |  |  | | --- | | **(12)** | | |  | | --- | | **Terminal leaflet: shape of apex** | |  |  |
|  | |  | | --- | | acute | | |  | | --- | | Enk (m), Mateur (f) | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | obtuse | | |  | | --- | |  | | |  | | --- | | 2 [   ] | |
|  | |  | | --- | | rounded | | |  | | --- | | Golden Hills (f) | | |  | | --- | | 3 [   ] | |
|  | |  | | --- | | truncate | | |  | | --- | | Insolia (f) | | |  | | --- | | 4 [   ] | |
|  | |  | | --- | | obcordate | | |  | | --- | |  | | |  | | --- | | 5 [   ] | |
|  |  |  |  |
|  |  |  |  |
| |  | | --- | | **5.4** |  |  | | --- | | **(24)** | | |  | | --- | | **Nut: shape in lateral view** | |  |  |
|  | |  | | --- | | ovate | | |  | | --- | | Kerman (f) | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | narrow elliptic | | |  | | --- | |  |   Napoletana (f) | |  | | --- | | 2 [   ] | |
|  | |  | | --- | | broad elliptic | | |  | | --- | | Sfax (f) | | |  | | --- | | 3 [   ] | |
|  |  |  |  |
|  |  |  |  |
| |  | | --- | | **5.5** |  |  | | --- | | **(35)** | | |  | | --- | | **Time of beginning of vegetative bud burst** | |  |  |
|  | |  | | --- | | very early | | |  | | --- | | Aegina (f), Chico (m) | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | early | | |  | | --- | | Larnaka (f) | | |  | | --- | | 2 [   ] | |
|  | |  | | --- | | medium | | |  | | --- | | Ask (m), Bronte (f) | | |  | | --- | | 3 [   ] | |
|  | |  | | --- | | late | | |  | | --- | | Joley (f) | | |  | | --- | | 4 [   ] | |
|  | |  | | --- | | very late | | |  | | --- | | Kerman (f), Peters (m) | | |  | | --- | | 5 [   ] | |
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|  | | Characteristics | Example Varieties | Note |
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| |  | | --- | | **5.6** |  |  | | --- | | **(36)** | | | |  | | --- | | **Time of beginning of flowering** | |  |  |
|  | | |  | | --- | | very early | | |  | | --- | | Avidon (f), Mateur (f) | | |  | | --- | | 1 [   ] | |
|  | | |  | | --- | | early | | |  | | --- | | Larnaka (f) | | |  | | --- | | 2 [   ] | |
|  | | |  | | --- | | medium | | |  | | --- | | 02-18 (m), M-38 (m), Sfax (f) | | |  | | --- | | 3 [   ] | |
|  | | |  | | --- | | late | | |  | | --- | | Kastel (f) | | |  | | --- | | 4 [   ] | |
|  | | |  | | --- | | very late | | |  | | --- | | Kerman (f), Peters (m) | | |  | | --- | | 5 [   ] | |
|  | |  |  |  |
|  | |  |  |  |
| |  | | --- | | **5.7** |  |  | | --- | | **(37)** | | | |  | | --- | | **Time of harvest maturity** | |  |  |
|  | | |  | | --- | | very early | | |  | | --- | | Avidon (f) | | |  | | --- | | 1 [   ] | |
|  | | |  | | --- | | early | | |  | | --- | | Golden Hills (f) | | |  | | --- | | 2 [   ] | |
|  | | |  | | --- | | medium | | |  | | --- | | Napoletana (f) | | |  | | --- | | 3 [   ] | |
|  | | |  | | --- | | late | | |  | | --- | |  | | |  | | --- | | 4 [   ] | |
|  | | |  | | --- | | very late | | |  | | --- | | Kerman (f) | | |  | | --- | | 5 [   ] | |
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| |  |  | | --- | --- | | 6. | Similar varieties and differences from these varieties | | |  | | --- | | *Please use the following table and box for comments to provide information on how your candidate variety differs from the variety (or varieties) which, to the best of your knowledge, is (or are) most similar. This information may help the examination authority to conduct its examination of distinctness in a more efficient way.* | | | | |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | |  | | --- | | Denomination(s) of variety(ies) similar to your candidate variety | | |  | | --- | | Characteristic(s) in which your candidate variety differs from the similar variety(ies) | | |  | | --- | | Describe the expression of the characteristic(s) for the **similar** variety(ies) | | |  | | --- | | Describe the expression of the characteristic(s) for **your** candidate variety | | | | | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | *Example* | |  | | --- | | *Plant: growth habit* | | |  | | --- | | *spreading* | | |  | | --- | | *drooping* | | |  |  |  |  | |  |  |  |  | |  |  |  |  | | | |  | Comments: | |

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| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  | | --- | | #7. | | Additional information which may help in the examination of the variety | | | | |  |  |  | | | | 7.1 | In addition to the information provided in sections 5 and 6, are there any additional characteristics which may help to distinguish the variety? | | | | |  | Yes | [ ] | No | [ ] | |  | (If yes, please provide details) | | | | | 7.2 | Are there any special conditions for growing the variety or conducting the examination? | | | | |  | Yes | [ ] | No | [ ] | |  | (If yes, please provide details) | | | | | 7.3 | Other information | | | | |  |  |  |  |  | | 7.3.1 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.] | | | | | | |  | | --- | | 7.3.2 In the case of frost or chilling hour requirements for the correct development of plant material of the candidate variety in the DUS trial field, please specify: | | | | | | |  |  |  |  |  | |

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| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | 8. | Authorization for release | | | | | |  | (a) | Does the variety require prior authorization for release under legislation concerning the protection of the environment, human and animal health? | | | | |  |  | Yes | [ ] | No | [ ] | |  | (b) | Has such authorization been obtained? | | | | |  |  | Yes | [ ] | No | [ ] | |  | If the answer to (b) is yes, please attach a copy of the authorization. | | | | | |  |  |  |  |  |  | |
| |  |  | | --- | --- | | |  | | --- | | 9. Information on plant material to be examined or submitted for examination | | |  | | 9.1 The expression of a characteristic or several characteristics of a variety may be affected by factors, such as pests and disease, chemical treatment (e.g. growth retardants or pesticides), effects of tissue culture, different rootstocks, scions taken from different growth phases of a tree, etc. | |  | | |  | | --- | | 9.2 The plant material should not have undergone any treatment which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If the plant material has undergone such treatment, full details of the treatment must be given. In this respect, please indicate below, to the best of your knowledge, if the plant material to be examined has been subjected to: | | | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  | (a) | Microorganisms (e.g. virus, bacteria, phytoplasma) | Yes [ ] | No [ ] |  | |  | (b) | Chemical treatment (e.g. growth retardant, pesticide) | Yes [ ] | No [ ] |  | |  | (c) | Tissue culture | Yes [ ] | No [ ] |  | |  | (d) | Other factors | Yes [ ] | No [ ] |  | |  | Please provide details for where you have indicated “yes”. | | | |  | |  |  | | | |  | | |  | | |  | | --- | | 9.3 Has the plant material to be examined been tested for the presence of virus or other pathogens? | | | |  |  |  | | --- | --- | --- | |  | Yes | [ ] | |  | (please provide details as specified by the Authority) | | |  | No | [ ] | | |  | |
| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | 10. | I hereby declare that, to the best of my knowledge, the information provided in this form is correct: | | | | | |  |  |  |  |  |  | |  |  |  | | |  | |  | Applicant’s name |  | |  |  |  |  |  |  | |  | Signature |  | Date |  |  | |  |  |  | |  |  | |  |  |  |  |  |  | |
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