|  |  |
| --- | --- |
|  | E |
| International Union for the Protection of New Varieties of Plants |  |

|  |  |
| --- | --- |
| Technical CommitteeFifty-Ninth SessionGeneva, October 23 and 24, 2023 | TC/59/12Original: EnglishDate: October 5, 2023 |

Partial revision of the Test Guidelines for CARROT

Document prepared by the Office of the Union

Disclaimer: this document does not represent UPOV policies or guidance

 The purpose of this document is to present a proposal for a partial revision of the Test Guidelines for Carrot (document TG/49/8 Corr.) for inclusion of characteristics from the Table of Characteristics in the Technical Questionnaire.

 The Technical Working Party for Vegetables (TWV), at its fifty-seventh session[[1]](#footnote-2), considered document TWV/57/6 “Partial revision of the Test Guidelines for Carrot” and agreed to propose the inclusion of the following characteristics in the TQ (characteristics for inclusion indicated in highlight and underline) (see document TWV/57/26 “Report”, paragraph 62):

|  |  |  |
| --- | --- | --- |
| **Char. No.** | **(\*)** | **Characteristic Name** |
| 3 | (\*) | Leaf: length (including petiole) |
| 5 | (\*) | Leaf: intensity of green color |
| 6 | (\*) | Leaf: anthocyanin coloration of petiole |
| 7 | (\*) | Root: length |
| 8 | (\*) | Root: width |
| 9 | (\*) | Root: ratio length/width |
| 10 | (\*) | Root: shape in longitudinal section |
| 12 | (\*) | Root: shape of shoulder |
| 13 | (\*) | Root: tip (when fully developed) |
| 14 | (\*) | Root: external color |
| 15 |  | Excluding varieties with white external root color: Root: intensity of external color |
| 16 |  | Root: anthocyanin coloration of skin of shoulder |
| 19 | (\*) | Root: diameter of core relative to total diameter |
| 20 | (\*) | Root: color of core |
| 22 | (\*) | Root: color of cortex |
| 27 |  | Varieties with blunt tip only: Root: time of development of rounded tip |
| 28 |  | Root: time of coloration of tip in longitudinal section |
| 29 |  | Plant: tendency to bolting |
| 31 | (\*) | Plants: proportion of male sterile plants |
| 32 | (\*) | Plant: type of male sterility |

 The proposed additions to TQ 5 are presented in highlight and underline (in English only).

| TECHNICAL QUESTIONNAIRE | Page {x} of {y} | Reference Number: |
| --- | --- | --- |
|  |  |  |
| 5. Characteristics of the variety to be indicated (the number in brackets refers to the corresponding characteristic in Test Guidelines; please mark the note which best corresponds). |
|  | Characteristics | Example Varieties | Note |
| **5.1(3)** | Leaf: length (including petiole) |  |  |
|  | very short | Mokum, Mignon | 1[ ] |
|  | very short to short |  | 2[ ] |
|  | short | Amsterdam 2, Amsterdam 3 | 3[ ] |
|  | short to medium |  | 4[ ] |
|  | medium | Juwarot, Nantaise améliorée 2 | 5[ ] |
|  | medium to long |  | 6[ ] |
|  | long | Chantenay, Chantenay à cœur rouge 2 | 7[ ] |
|  | long to very long |  | 8[ ] |
|  | very long | De Colmar à cœur rouge 2, Rothild | 9[ ] |
| **5.2(5)** | Leaf: intensity of green color |  |  |
|  | very light |  | 1[ ] |
|  | very light to light |  | 2[ ] |
|  | light | Adelaide, Leonor | 3[ ] |
|  | light to medium |  | 4[ ] |
|  | medium | Amsterdam 2, Amsterdam 3 | 5[ ] |
|  | medium to dark |  | 6[ ] |
|  | dark | Rothild | 7[ ] |
|  | dark to very dark |  | 8[ ] |
|  | very dark |  | 9[ ] |
| **5.3(6)** | Leaf: anthocyanin coloration of petiole |  |  |
|  | absent | Amsterdam 2 | 1[ ] |
|  | present | Tarenco | 9[ ] |
|  | Characteristics | Example Varieties | Note |
| **5.~~3~~ 4(7)** | Root: length |  |  |
|  | very short | Parijse Markt 2, Parijse Markt 3 | 1[ ] |
|  | very short to short |  | 2[ ] |
|  | short | Chantenay | 3[ ] |
|  | short to medium |  | 4[ ] |
|  | medium | Nantaise améliorée 2, Nantaise améliorée 3  | 5[ ] |
|  | medium to long |  | 6[ ] |
|  | long | Berlikumer 2, Berlikumer 3 | 7[ ] |
|  | long to very long |  | 8[ ] |
|  | very long | Lange Stompe Winter | 9[ ] |
| **5.~~4~~ 5(8)** | Root: width |  |  |
|  | very narrow |  | 1[ ] |
|  | very narrow to narrow |  | 2[ ] |
|  | narrow | Amsterdam 2, Amsterdam 3 | 3[ ] |
|  | narrow to medium |  | 4[ ] |
|  | medium | Nantaise améliorée 2, Nantaise améliorée 3 | 5[ ] |
|  | medium to broad |  | 6[ ] |
|  | broad | De Colmar à cœur rouge 2, Parijse Markt 2, Parijse Markt 3 | 7[ ] |
|  | broad to very broad |  | 8[ ] |
|  | very broad |  | 9[ ] |
|  | Characteristics | Example Varieties | Note |
| **5.6(9)** | Root: ratio length/ width |  |  |
|  | very small | Parijse Markt 2, Parijse Markt 3, Parmex  | 1[ ] |
|  | very small to small |  | 2[ ] |
|  | small | Courte améliorée à forcer  | 3[ ] |
|  | small to medium |  | 4[ ] |
|  | medium | Chantenay | 5[ ] |
|  | medium to large |  | 6[ ] |
|  | large | Nantaise améliorée 2, Nantaise améliorée 3 | 7[ ] |
|  | large to very large |  | 8[ ] |
|  | very large | Amsterdam 2 | 9[ ] |
| **5.~~5~~ 7(10)** | **Root: shape in longitudinal section** |  |  |
|  | circular | Parijse Markt 2, Parijse Markt 3 | 1[ ] |
|  | obovate |  | 2[ ] |
|  | medium obtriangular | Chantenay, De Colmar à cœur rouge 2 | 3[ ] |
|  | narrow obtriangular | Imperator, De Colmar à cœur rouge 3 | 4[ ] |
|  | narrow obtriangular to narrow oblong | Maestro | 5[ ] |
|  | narrow oblong | Amsterdam 2, Berlikumer 2, Berlikumer 3, Nantaise améliorée 5, Touchon | 6[ ] |
| **5.~~6~~ 8(12)** | Root: shape of shoulder |  |  |
|  | flat | De Colmar à cœur rouge 2 | 1[ ] |
|  | flat to rounded | Parijse Markt 2 | 2[ ] |
|  | rounded |  | 3[ ] |
|  | rounded to conical |  | 4[ ] |
|  | conical | Touchon | 5[ ] |
| **5.~~7~~ 9(13)** | **Root: tip (when fully developed)** |  |  |
|  | blunt | Berlikumer 3 | 1[ ] |
|  | slightly pointed | Mello Yello | 2[ ] |
|  | strongly pointed | Allred, Orbit | 3[ ] |
|  | Characteristics | Example Varieties | Note |
| **5.~~8~~ 10(14)** | Root: external color |  |  |
|  | white | White Satin | 1[ ] |
|  | yellow | Mello Yello | 2[ ] |
|  | orange | Bingo, Goliath, Karotan, Pinocchio, Tancar | 3[ ] |
|  | pinkish red | Nutri-red | 4[ ] |
|  | red | Pulsor | 5[ ] |
|  | purple | Purple Haze | 6[ ] |
| **5.~~9~~ 11(15)** | Excluding varieties with white external root color: Root: intensity of external color |  |  |
|  | very light |  | 1[ ] |
|  | very light to light |  | 2[ ] |
|  | light | Bingo, Mello Yello, Tancar | 3[ ] |
|  | light to medium |  | 4[ ] |
|  | medium | Goliath, Nutri-red | 5[ ] |
|  | medium to dark |  | 6[ ] |
|  | dark | Karotan, Pinocchio,Purple Haze | 7[ ] |
|  | dark to very dark |  | 8[ ] |
|  | very dark |  | 9[ ] |
| **5.12(16)** | **Root: anthocyanin coloration of skin of shoulder** |  |  |
|  | absent | Trevor | 1[ ] |
|  | present | Touchon | 9[ ] |
|  | Characteristics | Example Varieties | Note |
| **5.13(19)** | **Root: diameter of core relative to total diameter** |  |  |
|  | very small | Amsterdam 2, Amsterdam 3, Tourino | 1[ ] |
|  | very small to small |  | 2[ ] |
|  | small | Nantaise améliorée 2, Nantaise améliorée 3 | 3[ ] |
|  | small to medium |  | 4[ ] |
|  | medium | Berlikumer 2, Berlikumer 3 | 5[ ] |
|  | medium to large |  | 6[ ] |
|  | large | De Colmar à cœur rouge 2 | 7[ ] |
|  | large to very large |  | 8[ ] |
|  | very large | Giganta | 9[ ] |
| **5.~~10~~ 14(20)** | Root: color of core |  |  |
|  | white | White Satin | 1[ ] |
|  | yellow | Jaune de Lobberich, Pariser Markt | 2[ ] |
|  | orange | Nantaise améliorée 2, Nantaise améliorée 3 | 3[ ] |
|  | pinkish red |  | 4[ ] |
|  | red | Nutri-red | 5[ ] |
|  | purple | Afghan purple, Black Deshi | 6[ ] |
| **5.15(22)** | Root: color of cortex |  |  |
|  | white | White Satin | 1[ ] |
|  | yellow | Mellow Yello | 2[ ] |
|  | orange | Allred, Carlo | 3[ ] |
|  | pinkish red |  | 4[ ] |
|  | red | Nutri-red | 5[ ] |
|  | purple | Afghan purple, Black Deshi | 6[ ] |
|  | Characteristics | Example Varieties | Note |
| **5.16(27)** | Varieties with blunt tip only: Root: time of development of rounded tip |  |  |
|  | very early |  | 1[ ] |
|  | very early to early |  | 2[ ] |
|  | early | Touchon | 3[ ] |
|  | early to medium |  | 4[ ] |
|  | medium | Nantaise améliorée 2, Nantaise améliorée 3, Tiana | 5[ ] |
|  | medium to late |  | 6[ ] |
|  | late | Bureau, Nantaise améliorée 7, Tancar | 7[ ] |
|  | late to very late |  | 8[ ] |
|  | very late |  | 9[ ] |
| **5.17(28)** | Root: time of coloration of tip in longitudinal section |  |  |
|  | very early | Parijse Markt 3 | 1[ ] |
|  | very early to early |  | 2[ ] |
|  | early | Amsterdam 2, Amsterdam 3 | 3[ ] |
|  | early to medium |  | 4[ ] |
|  | medium | Nantaise améliorée 2, Nantaise améliorée 3 | 5[ ] |
|  | medium to late |  | 6[ ] |
|  | late | De Colmar à cœur rouge 2, Touchon | 7[ ] |
|  | late to very late |  | 8[ ] |
|  | very late | Goliath | 9[ ] |
|  | Characteristics | Example Varieties | Note |
| **5.18(29)** | Plant: tendency to bolting |  |  |
|  | very weak |  | 1[ ] |
|  | very weak to weak |  | 2[ ] |
|  | weak | Molene, Tancar | 3[ ] |
|  | weak to medium |  | 4[ ] |
|  | medium | Nantaise améliorée 2, Nantaise améliorée 3 | 5[ ] |
|  | medium to strong |  | 6[ ] |
|  | strong | Muscade, Touchon | 7[ ] |
|  | strong to very strong |  | 8[ ] |
|  | very strong |  | 9[ ] |
| 5.~~11~~ 19(31) | Plants: proportion of male sterile plants |  |  |
|  | absent or very low | Nantaise améliorée 2, Touchon | 1[ ] |
|  | intermediate |  | 2[ ] |
|  | high | Nanco, Tino | 3[ ] |
| 5.~~12~~ 20(32) | Plant: type of male sterility |  |  |
|  | brown anther | Nanco | 1[ ] |
|  | petaloid anther | Tino | 2[ ] |

[Annex follows]

1. held in Antalya, Türkiye, from May 1 to 5, 2023 [↑](#footnote-ref-2)