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

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| Technical Working Party for Vegetables  Fifty-Seventh Session Antalya, Türkiye, May 1 to 5, 2023 | TWV/57/6  Original: English  Date: February 28, 2023 |

Partial revision of the Test Guidelines for Carrot

Document prepared by the Office of the Union

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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 background to the proposed partial revision of the Test Guidelines for Carrot (*Daucus carota* L.) is presented in document TWP/7/6 “Revision of Test Guidelines”.

The TWV is invited to consider the inclusion of the following characteristics in the TQ (characteristics for inclusion indicated in highlight and underline):

|  |  |  |  |
| --- | --- | --- | --- |
| **Char. No.** | **(\*)** | **Characteristic Name** | **Comment** |
| 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 | Option “not applicable” added |
| 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 | Option “not applicable” added |
| 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.

| 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[ ] |
|  | not applicable | | | |  | | [   ] |
| **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[ ] |
|  | not applicable | | | |  | | [   ] |
| **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[ ] |

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