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

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| Technical Working Party for VegetablesFifty-Seventh SessionAntalya, Türkiye, May 1 to 5, 2023Technical Working Party for Agricultural CropsFifty-Second SessionVirtual meeting, May 22 to 26, 2023 | TWV/57/4-TWA/52/4Original: EnglishDate: March 30, 2023 |

Partial revision of the Test Guidelines for Maize

Document prepared by an expert from the European Union

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 The purpose of this document is to present a proposal for a partial revision of the Test Guidelines for Maize (document TG/2/7).

 The Technical Working Party for Vegetables (TWV), at its fifty-sixth session[[1]](#footnote-2), and The Technical Working Party for Agricultural Crops (TWA), at its fifty-first session[[2]](#footnote-3), considered a proposal for a partial revision of the Test Guidelines for Maize (*Zea mays* L.) and agreed to to continue discussions on the inclusion of characteristics from the Table of Characteristics in the Technical Questionnaire at the fifty-seventh session of the TWV and the fifty-second session of the TWA (see documents TWV/56/22 “Report”, paragraphs 102 and 103, and TWA/51/11 “Report”, paragraphs 65 and 67).

 The Technical Working Party for Agricultural Crops (TWA), at its fifty-first session, agreed that the Test Guidelines for Maize (*Zea mays* L.) be partially revised for characteristics 24.1 and 24.2 “Plant: length” and to clarify the wording of options “not applicable” in the Technical Questionnaire (see document TWA/51/11 “Report”, point 67 and Annex IV).

 The following changes are proposed:

1. Revision of characteristics 24.1 and 24.2 “Plant: length”
2. Inclusion of characteristics from the Table of Characteristics in the Technical Questionnaire (see documents TWV/56/22 “Report”, paragraphs 102 and 103, and TWP/7/6 “Revision of Test Guidelines”)

 The proposed changes are presented below in highlight and underline (insertion) and ~~strikethrough~~ (deletion).

Proposed revision of characteristics 24.1 and 24.2 “Plant: length”

*Current wording*

|  |  | English | français | deutsch | español | Example Varieties/Exemples/Beispielssorten/Variedades ejemplo | Note/Nota |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 24.1 (\*)(+) | MS 75-85 | Only inbred lines and varieties with ear type of grain: sweet or pop: Plant: length | Seulement pour les lignées endogames et les variétés avec type de grain de l’épi: doux ou à éclater: Plante: longueur | Nur Inzuchtlinien und Sorten mit Kolben: Korntyp: Zuckermais oder Popcorn: Pflanze: Länge | Sólo variedades endógamas y variedades con mazorca con tipo de grano: dulce o palomero: Planta: longitud |  |  |
| **QN** |  | very short | très courte | sehr kurz | muy corta | F7 | 1 |
|  |  | short | courte | kurz | corta | Spirit (SC), W117  | 3 |
|  |  | medium | moyenne | mittel | media | F244, Puma (SC) | 5 |
|  |  | long | longue | lang | larga | Royalty (SC), WD36 | 7 |
|  |  | very long | très longue | sehr lang | muy larga | Enterprise (SC) | 9 |
| 24.2(\*)(+) | MS 75-85 | Only hybrids and open-pollinated varieties, excluding varieties with ear type of grain: sweet or pop: Plant: length | Seulement pour les hybrides et les variétés à fécondation libre, à l’exclusion des variétés avec type de grain de l’épi: doux ou à éclater: Plante: longueur | Nur Hybriden und freiabblühende Sorten, ohne Sorten mit Kolben: Korntyp: Zuckermais oder Popcorn: Pflanze: Länge | Sólo híbridos y variedades de polinización libre, excepto variedades con mazorca con tipo de grano: dulce o palomero: Planta: longitud |  |  |
| **QN** |  | very short | très courte | sehr kurz | muy corta |  | 1 |
|  |  | short | courte | kurz | corta | PR39D23 | 3 |
|  |  | medium | moyenne | mittel | media | PR37Y12 | 5 |
|  |  | long | longue | lang | larga | DKC5166 | 7 |
|  |  | very long | très longue | sehr lang | muy larga |  | 9 |

*Proposed new wording*

|  |  | English | français | deutsch | español | Example Varieties/Exemples/Beispielssorten/Variedades ejemplo | Note/Nota |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 24.1 (\*)(+) | MS 75-85 | Only inbred lines ~~and varieties with ear type of grain: sweet or pop:~~ Plant: length | Seulement pour les lignées endogames ~~et les variétés avec type de grain de l’épi: doux ou à éclater~~: Plante: longueur | Nur Inzuchtlinien ~~und Sorten mit Kolben: Korntyp: Zuckermais oder Popcorn~~: Pflanze: Länge | Sólo variedades endógamas ~~y variedades con mazorca con tipo de grano: dulce o palomero~~: Planta: longitud |  |  |
| **QN** |  | very short | très courte | sehr kurz | muy corta | F7 | 1 |
|  |  | short | courte | kurz | corta | ~~Spirit (SC),~~ W117  | 3 |
|  |  | medium | moyenne | mittel | media | F244~~, Puma (SC)~~ | 5 |
|  |  | long | longue | lang | larga | ~~Royalty (SC),~~ WD36 | 7 |
|  |  | very long | très longue | sehr lang | muy larga | ~~Enterprise (SC)~~ | 9 |
| 24.2(\*)(+) | MS 75-85 | Only hybrids and open-pollinated varieties~~, excluding varieties with ear type of grain: sweet or pop~~: Plant: length | Seulement pour les hybrides et les variétés à fécondation libre~~, à l’exclusion des variétés avec type de grain de l’épi: doux ou à éclater~~: Plante: longueur | Nur Hybriden und freiabblühende Sorten~~, ohne Sorten mit Kolben: Korntyp: Zuckermais oder Popcorn~~: Pflanze: Länge | Sólo híbridos y variedades de polinización libre~~, excepto variedades con mazorca con tipo de grano: dulce o palomero~~: Planta: longitud |  |  |
| **QN** |  | very short | très courte | sehr kurz | muy corta |  | 1 |
|  |  | short | courte | kurz | corta | PR39D23, Spirit (SC) | 3 |
|  |  | medium | moyenne | mittel | media | PR37Y12, Puma (SC) | 5 |
|  |  | long | longue | lang | larga | DKC5166, Royalty (SC) | 7 |
|  |  | very long | très longue | sehr lang | muy larga | Enterprise (SC) | 9 |

Proposed revision of the Technical Questionnaire

 The TWV and TWA are invited to consider the inclusion of the following characteristics in the TQ (characteristics for inclusion indicated 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(8)** | **Tassel: time of anthesis**  |  |  |
|  | very early |  | 1 [ ] |
|  | very early to early | KW1069, Spirit (SC) | 2 [ ] |
|  | early | Champ (SC), F257  | 3 [ ] |
|  | early to medium | Centurion (SC), F259  | 4 [ ] |
|  | medium | F522, Zenith (SC) | 5 [ ] |
|  | medium to late | A632  | 6 [ ] |
|  | late | B73  | 7 [ ] |
|  | late to very late | AM1513 | 8 [ ] |
|  | very late |  | 9 [ ] |
| **5.2(9)** | **Tassel: anthocyanin coloration at base of glume**  |  |  |
|  | absent or very weak | Royalty (SC), W117  | 1[ ] |
|  | very weak to weak |  | 2[ ] |
|  | weak | Boston (SC), F66  | 3[ ] |
|  | weak to medium |  | 4[ ] |
|  | medium | F107 | 5[ ] |
|  | medium to strong |  | 6[ ] |
|  | strong | EP1 | 7[ ] |
|  | strong to very strong |  | 8[ ] |
|  | very strong |  | 9[ ] |
|  | Characteristics | Example Varieties | Note |
| **5.3(10)** | **Tassel: anthocyanin coloration of glumes excluding base** |  |  |
|  | absent or very weak | Empire (SC), F259  | 1[ ] |
|  | very weak to weak |  | 2[ ] |
|  | weak | F2, Royalty (SC) | 3[ ] |
|  | weak to medium |  | 4[ ] |
|  | medium | Centurion (SC), WD36  | 5[ ] |
|  | medium to strong |  | 6[ ] |
|  | strong | W79A | 7[ ] |
|  | strong to very strong |  | 8[ ] |
|  | very strong |  | 9[ ] |
| **5.4(11)** | **Tassel: anthocyanin coloration of anthers**  |  |  |
|  | absent or very weak | A654, Empire (SC) | 1[ ] |
|  | very weak to weak |  | 2[ ] |
|  | weak | F2, Royalty (SC) | 3[ ] |
|  | weak to medium |  | 4[ ] |
|  | medium | Centurion (SC), W182E  | 5[ ] |
|  | medium to strong |  | 6[ ] |
|  | strong |  | 7[ ] |
|  | strong to very strong |  | 8[ ] |
|  | very strong |  | 9[ ] |
| **5.5(14)** | **Tassel: number of primary lateral branches** |  |  |
|  | absent or very few | F7 | 1[ ] |
|  | very few to few |  | 2[ ] |
|  | few | F252, Mv. Aranyos (SC) | 3[ ] |
|  | few to medium |  | 4[ ] |
|  | medium | F244, Kokanee (SC) | 5[ ] |
|  | medium to many |  | 6[ ] |
|  | many | A188, Zenith (SC) | 7[ ] |
|  | many to very many |  | 8[ ] |
|  | very many | Suregold (SC) | 9[ ] |
|  | Characteristics | Example Varieties | Note |
| **5.6(15)** | **Ear: time of silk emergence**  |  |  |
|  | very early | Mv. Aranyos (SC) | 1[ ] |
|  | very early to early | KW1069, Spirit (SC) | 2[ ] |
|  | early | Champ (SC), F257  | 3[ ] |
|  | early to medium | F259, Royalty (SC) | 4[ ] |
|  | medium | Bonus (SC), F522  | 5[ ] |
|  | medium to late | A632 | 6[ ] |
|  | late | B73 | 7[ ] |
|  | late to very late | AM1513 | 8[ ] |
|  | very late |  | 9[ ] |
| **5.7(16)** | **Ear: anthocyanin coloration of silks** |  |  |
|  | absent or very weak | Bonus (SC), F7, F195  | 1[ ] |
|  | very weak to weak |  | 2[ ] |
|  | weak | El Toro (SC), F257  | 3[ ] |
|  | weak to medium |  | 4[ ] |
|  | medium | F244, Gyöngymazsola (SC) | 5[ ] |
|  | medium to strong |  | 6[ ] |
|  | strong | W401 | 7[ ] |
|  | strong to very strong |  | 8[ ] |
|  | very strong |  | 9[ ] |
|  | Characteristics | Example Varieties | Note |
| **5.8 i(24.1)** | **Only inbred lines: Plant: length** |  |  |
|  | very short | F7 | 1[ ] |
|  | very short to short |  | 2[ ] |
|  | short | ~~Spirit (SC),~~ W117 | 3[ ] |
|  | short to medium |  | 4[ ] |
|  | medium | F244~~, Puma (SC)~~ | 5[ ] |
|  | medium to long |  | 6[ ] |
|  | long | ~~Royalty (SC),~~ WD36 | 7[ ] |
|  | long to very long |  | 8[ ] |
|  | very long  | ~~Enterprise (SC)~~ | 9[ ] |
|  | not applicable to hybrids and open-pollinated varieties |  | [ ] |
| **5.~~4~~ 8 ii(24.2)** | **Only hybrids and open-pollinated varieties, excluding varieties with ear type of grain: sweet or pop: Plant: length** |  |  |
|  | very short |  | 1[ ] |
|  | very short to short |  | 2[ ] |
|  | short | PR39D23, Spirit (SC) | 3[ ] |
|  | short to medium |  | 4[ ] |
|  | medium | PR37Y12, Puma (SC) | 5[ ] |
|  | medium to long |  | 6[ ] |
|  | long | DKC5166, Royalty (SC) | 7[ ] |
|  | long to very long |  | 8[ ] |
|  | very long  | Enterprise (SC) | 9[ ] |
|  | not applicable to inbred lines |  | [ ] |
|  | Characteristics | Example Varieties | Note |
| **5.9(28)** | **Ear: length**  |  |  |
|  | very short |  | 1[ ] |
|  | very short to short |  | 2[ ] |
|  | short | F2 | 3[ ] |
|  | short to medium |  | 4[ ] |
|  | medium | A654, Spirit (SC) | 5[ ] |
|  | medium to long |  | 6[ ] |
|  | long | Empire (SC), MO17  | 7[ ] |
|  | long to very long |  | 8[ ] |
|  | very long |  | 9[ ] |
| **5.10(29)** | **Ear: diameter (in middle)** |  |  |
|  | very small |  | 1[ ] |
|  | very small to small |  | 2[ ] |
|  | small | F7 | 3[ ] |
|  | small to medium |  | 4[ ] |
|  | medium | W117 | 5[ ] |
|  | medium to large |  | 6[ ] |
|  | large | Centurion (SC), F481 | 7[ ] |
|  | large to very large |  | 8[ ] |
|  | very large | Empire (SC) | 9[ ] |
| **5.11(30)** | Ear: shape |  |  |
|  | conical | F16, Wombat (SC) | 1[ ] |
|  | conico-cylindrical | Centurion (SC), F816  | 2[ ] |
|  | cylindrical | F66, GH2547 (SC) | 3[ ] |
|  | Characteristics | Example Varieties | Note |
| **5.12(31)** | **Ear: number of rows of grain** |  |  |
|  | very few |  | 1[ ] |
|  | very few to few |  | 2[ ] |
|  | few | F257 | 3[ ] |
|  | few to medium |  | 4[ ] |
|  | medium | Dessert 73 (SC), F16  | 5[ ] |
|  | medium to many |  | 6[ ] |
|  | many | B73, Bonus (SC) | 7[ ] |
|  | many to very many |  | 8[ ] |
|  | very many |  | 9[ ] |
| **5.13(32)** | **Only varieties with ear type of grain: sweet or waxy: Ear: number of colors of grains** |  |  |
|  | one | Jubilee (SC) | 1[ ] |
|  | two | Eolrukchal-ilho,Serendipity (SC) | 2[ ] |
|  | not applicable for varieties with other type of grain than sweet or waxy |  | [ ] |
| **5.14(33)** | **Only varieties with ear type of grain: sweet: Grain: intensity of yellow color** |  |  |
|  | very light |  | 1[ ] |
|  | very light to light |  | 2[ ] |
|  | light | Gyöngymazsola (SC) | 3[ ] |
|  | light to medium |  | 4[ ] |
|  | medium | Royalty (SC) | 5[ ] |
|  | medium to dark |  | 6[ ] |
|  | dark | Kokanee (SC) | 7[ ] |
|  | dark to very dark |  | 8[ ] |
|  | very dark |  | 9[ ] |
|  | not applicable for varieties with other type of grain than sweet |  | [ ] |
|  | Characteristics | Example Varieties | Note |
| **5.15(35)** | **Only varieties with ear type of grain: sweet: Grain: width**  |  |  |
|  | very narrow |  | 1[ ] |
|  | very narrow to narrow |  | 2[ ] |
|  | narrow | Bonus (SC) | 3[ ] |
|  | narrow to medium |  | 4[ ] |
|  | medium | Jubilee (SC) | 5[ ] |
|  | medium to broad |  | 6[ ] |
|  | broad | Mv. Aranyos (SC) | 7[ ] |
|  | broad to very broad |  | 8[ ] |
|  | very broad |  | 9[ ] |
|  | not applicable not applicable for varieties with other type of grain than sweet |  | [ ] |
| **5.16(36)** | **Ear: type of grain**  |  |  |
|  | flint | F2 | 1 [ ] |
|  | flint-like | F252 | 2 [ ] |
|  | intermediate | F107 | 3 [ ] |
|  | dent-like | A654 | 4 [ ] |
|  | dent | W182E | 5 [ ] |
|  | sweet | Jubilee (SC) | 6 [ ] |
|  | pop | Iowa Pop (PC) | 7 [ ] |
|  | waxy |  | 8 [ ] |
|  | flour |  | 9 [ ] |
| **5.17(37)** | **Only varieties with ear type of grain: sweet: Ear: shrinkage of top of grain**  |  |  |
|  | weak  | Zarja (SC) | 1[ ] |
|  | weak to medium |  | 2[ ] |
|  | medium | Merkur (SC) | 3[ ] |
|  | medium to strong |  | 4[ ] |
|  | strong | Dessert 73 (SC) | 5[ ] |
|  | not applicable for varieties with other type of grain than sweet |  | [ ] |
|  | Characteristics | Example Varieties | Note |
| **5.18(38)** | **Ear: color of top of grain** |  |  |
|  | white | A188, Pure white (SC), Snowbelle (SC) | 1 [ ] |
|  | yellowish white |  | 2 [ ] |
|  | yellow | F259 | 3 [ ] |
|  | yellow orange | F2, Gyöngymazsola (SC) | 4 [ ] |
|  | orange | F257, GH 2547 (SC) | 5 [ ] |
|  | red orange | Dynasty (SC) | 6 [ ] |
|  | red |  | 7 [ ] |
|  | purple |  | 8 [ ] |
|  | brownish | Zenith (SC) | 9 [ ] |
|  | blue black | Miheukchal | 10 [ ] |
| **5.19(39)** | **Excluding varieties with ear type of grain: sweet: Ear: color of dorsal side of grain** |  |  |
|  | white | F481 | 1 [ ] |
|  | yellowish white | A188 | 2 [ ] |
|  | yellow |  | 3 [ ] |
|  | yellow orange | F66 | 4 [ ] |
|  | orange | EP1 | 5 [ ] |
|  | red orange |  | 6 [ ] |
|  | red |  | 7 [ ] |
|  | purple |  | 8 [ ] |
|  | brownish |  | 9 [ ] |
|  | blue black |  | 10 [ ] |
|  | not applicable for varieties with ear type of grain: sweet |  | [ ] |
|  | Characteristics | Example Varieties | Note |
| **5.20(41)** | **Ear: anthocyanin coloration of glumes of cob** |  |  |
|  | absent or very weak | F2, F257 | 1 [ ] |
|  | very weak to weak |  | 2 [ ] |
|  | weak | F252 | 3 [ ] |
|  | weak to medium |  | 4 [ ] |
|  | medium | W117 | 5 [ ] |
|  | medium to strong |  | 6 [ ] |
|  | strong | A632 | 7 [ ] |
|  | strong to very strong |  | 8 [ ] |
|  | very strong |  | 9 [ ] |

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1. organized by electronic means, from April 18 to 22, 2022 [↑](#footnote-ref-2)
2. held in Cambridge, United Kingdom, from May 23 to 27, 2022 [↑](#footnote-ref-3)