

Technical Working Party for Vegetables

Fifty-Seventh Session

Antalya, Türkiye, May 1 to 5, 2023

TWV/57/4-TWA/52/4

Original: English**Date:** March 30, 2023**Technical Working Party for Agricultural Crops**

Fifty-Second Session

Virtual meeting, May 22 to 26, 2023

PARTIAL REVISION OF THE TEST GUIDELINES FOR MAIZE*Document prepared by an expert from the European Union**Disclaimer: this document does not represent UPOV policies or guidance*

1. The purpose of this document is to present a proposal for a partial revision of the Test Guidelines for Maize (document TG/2/7).
2. The Technical Working Party for Vegetables (TWV), at its fifty-sixth session¹, and The Technical Working Party for Agricultural Crops (TWA), at its fifty-first session², considered a proposal for a partial revision of the Test Guidelines for Maize (*Zea mays* L.) and agreed 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).
3. 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).
4. The following changes are proposed:
 - (a) Revision of characteristics 24.1 and 24.2 “Plant: length”
 - (b) 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”)
5. The proposed changes are presented below in highlight and underline (insertion) and ~~striketrough~~ (deletion).

¹ organized by electronic means, from April 18 to 22, 2022

² held in Cambridge, United Kingdom, from May 23 to 27, 2022

Proposed revision of characteristics 24.1 and 24.2 "Plant: length"

Current wording

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

Proposed revision of the Technical Questionnaire

6. 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:
<p>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).</p>		
Characteristics	Example Varieties	Note
<p>5.1 Tassel: time of anthesis (8)</p>		
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 []
<p>5.2 Tassel: anthocyanin coloration at base of glume (9)</p>		
absent or very weak	Royalty (SC), W117	1 []
<u>very weak to weak</u>		<u>2 []</u>
weak	Boston (SC), F66	3 []
<u>weak to medium</u>		<u>4 []</u>
medium	F107	5 []
<u>medium to strong</u>		<u>6 []</u>
strong	EP1	7 []
<u>strong to very strong</u>		<u>8 []</u>
very strong		9 []

TECHNICAL QUESTIONNAIRE		Page {x} of {y}	Reference Number:
Characteristics	Example Varieties	Note	
5.3 (10)	<u>Tassel: anthocyanin coloration of glumes excluding base</u>		
<u>absent or very weak</u>	<u>Empire (SC), F259</u>	<u>1</u>	<u>]</u>
<u>very weak to weak</u>		<u>2</u>	<u>]</u>
<u>weak</u>	<u>F2, Royalty (SC)</u>	<u>3</u>	<u>]</u>
<u>weak to medium</u>		<u>4</u>	<u>]</u>
<u>medium</u>	<u>Centurion (SC), WD36</u>	<u>5</u>	<u>]</u>
<u>medium to strong</u>		<u>6</u>	<u>]</u>
<u>strong</u>	<u>W79A</u>	<u>7</u>	<u>]</u>
<u>strong to very strong</u>		<u>8</u>	<u>]</u>
<u>very strong</u>		<u>9</u>	<u>]</u>
5.4 (11)	<u>Tassel: anthocyanin coloration of anthers</u>		
<u>absent or very weak</u>	<u>A654, Empire (SC)</u>	<u>1</u>	<u>]</u>
<u>very weak to weak</u>		<u>2</u>	<u>]</u>
<u>weak</u>	<u>F2, Royalty (SC)</u>	<u>3</u>	<u>]</u>
<u>weak to medium</u>		<u>4</u>	<u>]</u>
<u>medium</u>	<u>Centurion (SC), W182E</u>	<u>5</u>	<u>]</u>
<u>medium to strong</u>		<u>6</u>	<u>]</u>
<u>strong</u>		<u>7</u>	<u>]</u>
<u>strong to very strong</u>		<u>8</u>	<u>]</u>
<u>very strong</u>		<u>9</u>	<u>]</u>
5.5 (14)	<u>Tassel: number of primary lateral branches</u>		
<u>absent or very few</u>	<u>F7</u>	<u>1</u>	<u>]</u>
<u>very few to few</u>		<u>2</u>	<u>]</u>
<u>few</u>	<u>F252, Mv. Aranyos (SC)</u>	<u>3</u>	<u>]</u>
<u>few to medium</u>		<u>4</u>	<u>]</u>
<u>medium</u>	<u>F244, Kokanee (SC)</u>	<u>5</u>	<u>]</u>
<u>medium to many</u>		<u>6</u>	<u>]</u>
<u>many</u>	<u>A188, Zenith (SC)</u>	<u>7</u>	<u>]</u>
<u>many to very many</u>		<u>8</u>	<u>]</u>
<u>very many</u>	<u>Suregold (SC)</u>	<u>9</u>	<u>]</u>

TECHNICAL QUESTIONNAIRE		Page {x} of {y}	Reference Number:
Characteristics	Example Varieties	Note	
5.6 (15)	Ear: time of silk emergence		
<u>very early</u>	<u>Mv. Aranyos (SC)</u>	<u>1[]</u>	
<u>very early to early</u>	<u>KW1069, Spirit (SC)</u>	<u>2[]</u>	
<u>early</u>	<u>Champ (SC), F257</u>	<u>3[]</u>	
<u>early to medium</u>	<u>F259, Royalty (SC)</u>	<u>4[]</u>	
<u>medium</u>	<u>Bonus (SC), F522</u>	<u>5[]</u>	
<u>medium to late</u>	<u>A632</u>	<u>6[]</u>	
<u>late</u>	<u>B73</u>	<u>7[]</u>	
<u>late to very late</u>	<u>AM1513</u>	<u>8[]</u>	
<u>very late</u>		<u>9[]</u>	
5.7 (16)	Ear: anthocyanin coloration of silks		
absent or very weak	Bonus (SC), F7, F195	1[]	
<u>very weak to weak</u>		<u>2[]</u>	
weak	El Toro (SC), F257	3[]	
<u>weak to medium</u>		<u>4[]</u>	
medium	F244, Gyöngymazsola (SC)	5[]	
<u>medium to strong</u>		<u>6[]</u>	
strong	W401	7[]	
<u>strong to very strong</u>		<u>8[]</u>	
very strong		9[]	

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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Characteristics	Example Varieties	Note
5.8 i (24.1) <u>Only inbred lines:</u> Plant: length		
very short	F7	1[]
<u>very short to short</u>		2[]
short	<u>Spirit (SC)</u> , W117	3[]
<u>short to medium</u>		4[]
medium	F244, <u>Puma (SC)</u>	5[]
<u>medium to long</u>		6[]
long	<u>Royalty (SC)</u> , WD36	7[]
<u>long to very long</u>		8[]
very long	<u>Enterprise (SC)</u>	9[]
<u>not applicable to hybrids and open-pollinated varieties</u>		[]
5.4 8 ii (24.2) <u>Only hybrids and open-pollinated varieties, excluding varieties with ear type of grain: sweet or pop:</u> Plant: length		
very short		1[]
<u>very short to short</u>		2[]
short	PR39D23, <u>Spirit (SC)</u>	3[]
<u>short to medium</u>		4[]
medium	PR37Y12, <u>Puma (SC)</u>	5[]
<u>medium to long</u>		6[]
long	DKC5166, <u>Royalty (SC)</u>	7[]
<u>long to very long</u>		8[]
very long	<u>Enterprise (SC)</u>	9[]
<u>not applicable to inbred lines</u>		[]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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Characteristics	Example Varieties	Note
5.9 (28)		
Ear: length		
<u>very short</u>		1[]
<u>very short to short</u>		2[]
<u>short</u>	F2	3[]
<u>short to medium</u>		4[]
<u>medium</u>	A654, Spirit (SC)	5[]
<u>medium to long</u>		6[]
<u>long</u>	Empire (SC), MO17	7[]
<u>long to very long</u>		8[]
<u>very long</u>		9[]
5.10 (29)		
Ear: diameter (in middle)		
<u>very small</u>		1[]
<u>very small to small</u>		2[]
<u>small</u>	F7	3[]
<u>small to medium</u>		4[]
<u>medium</u>	W117	5[]
<u>medium to large</u>		6[]
<u>large</u>	Centurion (SC), F481	7[]
<u>large to very large</u>		8[]
<u>very large</u>	Empire (SC)	9[]
5.11 (30)		
Ear: shape		
<u>conical</u>	F16, Wombat (SC)	1[]
<u>conico-cylindrical</u>	Centurion (SC), F816	2[]
<u>cylindrical</u>	F66, GH2547 (SC)	3[]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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Characteristics	Example Varieties	Note
5.12 (31) <u>Ear: number of rows of grain</u>		
<u>very few</u>		1 []
<u>very few to few</u>		2 []
<u>few</u>	<u>F257</u>	3 []
<u>few to medium</u>		4 []
<u>medium</u>	<u>Dessert 73 (SC), F16</u>	5 []
<u>medium to many</u>		6 []
<u>many</u>	<u>B73, Bonus (SC)</u>	7 []
<u>many to very many</u>		8 []
<u>very many</u>		9 []
5.13 (32) <u>Only varieties with ear type of grain: sweet or waxy: Ear: number of colors of grains</u>		
<u>one</u>	<u>Jubilee (SC)</u>	1 []
<u>two</u>	<u>Eolrukchal-ilho, Serendipity (SC)</u>	2 []
<u>not applicable for varieties with other type of grain than sweet or waxy</u>		[]
5.14 (33) <u>Only varieties with ear type of grain: sweet: Grain: intensity of yellow color</u>		
<u>very light</u>		1 []
<u>very light to light</u>		2 []
<u>light</u>	<u>Gyöngymazsola (SC)</u>	3 []
<u>light to medium</u>		4 []
<u>medium</u>	<u>Royalty (SC)</u>	5 []
<u>medium to dark</u>		6 []
<u>dark</u>	<u>Kokanee (SC)</u>	7 []
<u>dark to very dark</u>		8 []
<u>very dark</u>		9 []
<u>not applicable for varieties with other type of grain than sweet</u>		[]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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Characteristics	Example Varieties	Note
5.15 (35)		
Only varieties with ear type of grain: sweet: Grain: width		
<u>very narrow</u>		1 []
<u>very narrow to narrow</u>		2 []
<u>narrow</u>	<u>Bonus (SC)</u>	3 []
<u>narrow to medium</u>		4 []
<u>medium</u>	<u>Jubilee (SC)</u>	5 []
<u>medium to broad</u>		6 []
<u>broad</u>	<u>Mv. Aranyos (SC)</u>	7 []
<u>broad to very broad</u>		8 []
<u>very broad</u>		9 []
<u>not applicable not applicable for varieties with other type of grain than sweet</u>		[]
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		
<u>weak</u>	<u>Zarja (SC)</u>	1 []
<u>weak to medium</u>		2 []
<u>medium</u>	<u>Merkur (SC)</u>	3 []
<u>medium to strong</u>		4 []
<u>strong</u>	<u>Dessert 73 (SC)</u>	5 []
<u>not applicable for varieties with other type of grain than sweet</u>		[]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
<p>Characteristics</p>	<p>Example Varieties</p>	<p>Note</p>
<p>5.18 (38) Ear: color of top of grain</p> <p><u>white</u></p> <p><u>yellowish white</u></p> <p><u>yellow</u></p> <p><u>yellow orange</u></p> <p><u>orange</u></p> <p><u>red orange</u></p> <p><u>red</u></p> <p><u>purple</u></p> <p><u>brownish</u></p> <p><u>blue black</u></p>	<p><u>A188, Pure white (SC), Snowbelle (SC)</u></p> <p><u>F259</u></p> <p><u>F2, Gyöngymazsola (SC)</u></p> <p><u>F257, GH 2547 (SC)</u></p> <p><u>Dynasty (SC)</u></p> <p><u>Zenith (SC)</u></p> <p><u>Miheukchal</u></p>	<p><u>1 []</u></p> <p><u>2 []</u></p> <p><u>3 []</u></p> <p><u>4 []</u></p> <p><u>5 []</u></p> <p><u>6 []</u></p> <p><u>7 []</u></p> <p><u>8 []</u></p> <p><u>9 []</u></p> <p><u>10 []</u></p>
<p>5.19 (39) Excluding varieties with ear type of grain: sweet: Ear: color of dorsal side of grain</p> <p><u>white</u></p> <p><u>yellowish white</u></p> <p><u>yellow</u></p> <p><u>yellow orange</u></p> <p><u>orange</u></p> <p><u>red orange</u></p> <p><u>red</u></p> <p><u>purple</u></p> <p><u>brownish</u></p> <p><u>blue black</u></p> <p><u>not applicable for varieties with ear type of grain: sweet</u></p>	<p><u>F481</u></p> <p><u>A188</u></p> <p><u>F66</u></p> <p><u>EP1</u></p>	<p><u>1 []</u></p> <p><u>2 []</u></p> <p><u>3 []</u></p> <p><u>4 []</u></p> <p><u>5 []</u></p> <p><u>6 []</u></p> <p><u>7 []</u></p> <p><u>8 []</u></p> <p><u>9 []</u></p> <p><u>10 []</u></p> <p><u>[]</u></p>

TECHNICAL QUESTIONNAIRE		Page {x} of {y}	Reference Number:
Characteristics	Example Varieties	Note	
5.20 (41) Ear: anthocyanin coloration of glumes of cob			
absent or very weak	F2, F257	1 []	
<u>very weak to weak</u>		2 []	
weak	F252	3 []	
<u>weak to medium</u>		4 []	
medium	W117	5 []	
<u>medium to strong</u>		6 []	
strong	A632	7 []	
<u>strong to very strong</u>		8 []	
very strong		9 []	

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