

Plant		Carrot		82(08021)	Primary essential character	
No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Plant attitude	10 plants	Observation	3:Erect 4:Semi-erect 5:Intermediate 6:Semi-spreading 7:Spreading		One month before harvest
2	Leaf sinus	10 plants	Observation	1:Extremely shallow 2:Very shallow 3:Shallow 4:Slightly shallow 5:Intermediate 6:Slightly deep 7:Deep 8:Very deep 9:Extremely deep		Observe typical leaves
3	Root length	10 plants	Measurement	cm (round to the 1st decimal place)		Length of the main root at harvest
4	Root shape	10 plants	Observation	1:Round 2:Wedge 3:Short cylindrical 4:Short taper 5:Cylindrical 6:Tapered 7:Long cylindrical 8:Long taper 9:Long stick		After harvest
5	Shape of root bottom	10 plants	Observation	3:Round 4:Slightly round 5:Stream line 6:Slightly pointed 7:Pointed		At harvest
6	Core diameter	10 plants	Measurement	mm (integer)		The central part of main root
7	Root color	10 plants	Observation	1:White 2:Yellow 3:Yellow orange 4:Orange 5:Orange red 6:Red 7:Red purple 8:Purple		
8	Exposure of root shoulder	10 plants	Observation	1:Deep 3:Level 5:Semi-uprooted 7:Uprooted 9:Extremely uprooted		
9	Bolting percentage	100 plants	Measurement	% (integer)		At harvest

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No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Seed size	500 seeds	Measurement	g (round to the 1st decimal place)		
2	Seed germination ratio	200 seeds	Measurement	% (integer)		Two weeks after sowing at 25 degrees centigrade
3	Number of leaves	10 plants	Measurement	* (integer)		Three months after sowing
4	Leaf spreading	10 plants	Observation	3:Erect 4:Slightly erect 5:Intermediate 6:Slightly prostrate 7:Prostrate		Three months after sowing
5	Leaf color	10 plants	Observation	1:Extremely light 2:Very light 3:Light 4:Slightly light 5:Intermediate 6:Slightly dark 7:Dark 8:Very dark 9:Extremely dark		
6	Anthocyanin pigmentation of leaf	10 plants	Observation	0:None 1:Extremely little 2:Very little 3:Little 4:Slightly little 5:Intermediate 6:Some 7:Much 8:Very much 9:Extremely much		
7	Leaf length	10 plants	Measurement	cm (integer)		Three months after sowing
8	Leaf width	10 plants	Measurement	cm (integer)		Three months after sowing
9	Petiole length	10 plants	Measurement	cm (integer)		Three months after sowing
10	Petiole width	10 plants	Measurement	mm (integer)		Three months after sowing
11	Petiole pubescence	10 plants	Observation	0:Absent 1:Extremely thin 2:Very thin 3:Thin 4:Slightly thin 5:Intermediate 6:Slightly thick 7:Thick 8:Very thick 9:Extremely thick		
12	Green pigmentation of root shoulder	10 roots	Observation	0:Absent 1:Extremely light 2:Very light 3:Light 4:Slightly light 5:Intermediate 6:Slightly green 7:Green 8:Very green 9:Extremely green		At harvest
13	Purple pigmentation of root shoulder	10 roots	Observation	0:None 1:Extremely light 2:Very light 3:Light 4:Slightly light 5:Intermediate 6:Slightly purple 7:Purple 8:Very purple 9:Extremely purple		At harvest

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14	Dent of root neck	10 roots	Observation	1:Extremely shallow 2:Very shallow 3:Shallow 4:Slightly shallow 5:Intermediate 6:Slightly deep 7:Deep 8:Very deep 9:Extremely deep		At harvest
15	Shape of root shoulder	10 roots	Observation	3:Broad 4:Slightly broad 5:Round 6:Slightly slanted 7:Slanted		At harvest
16	Diameter of root shoulder	10 roots	Measurement	mm (integer)		At harvest
17	Root surface	10 roots	Observation	1:Extremely rough 2:Very rough 3:Rough 4:Slightly rough 5:Intermediate 6:Slightly smooth 7:Smooth 8:Very smooth 9:Extremely smooth		At harvest
18	Size of lenticel	10 roots	Observation	1:Extremely small 2:Very small 3:Small 4:Slightly small 5:Intermediate 6:Slightly large 7:Large 8:Very large 9:Extremely large		At harvest
19	Dent of lenticel	10 roots	Observation	3:Shallow 5:Intermediate 7:Deep		At harvest
20	Outer core thickness	10 roots	Measurement	mm (integer)		The middle part of roots
21	Outer core color	10 roots	Observation	1:White 2:Yellow 3:Yellow orange 4:Orange 5:Orange red 6:Red 7:Red purple 8:Purple		The middle part of roots
22	Inner core color	10 roots	Observation	1:White 2:Yellow 3:Yellow orange 4:Orange 5:Orange red 6:Red 7:Red purple 8:Purple		The middle part of roots
23	Rate of root cracking	50 roots	Measurement	% (integer)		The rate of cracked roots at harvest
24	Root uniformity	30 roots	Observation	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high		At harvest
25	Flowering time of primary umbel	30 plants	Observation	1:Extremely early 2:Very early 3:Early 4:Slightly early 5:Intermediate 6:Slightly late 7:Late 8:Very late 9:Extremely late		
26	Flowering time of secondary umbel	30 plants	Observation	1:Extremely early 2:Very early 3:Early 4:Slightly early 5:Intermediate 6:Slightly late 7:Late 8:Very late 9:Extremely late		

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No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
27	Number of primary branches	10 plants	Measurement	* (integer)		At flowering
28	Flower stalk length	10 plants	Measurement	cm (integer)		At flowering
29	Flower stalk diameter	10 plants	Measurement	mm (integer)		At flowering
30	Flower stalk posture	10 plants	Observation	3:Erect 4:Slightly erect 5:Intermediate 6:Slightly spreading 7:Spreading		At flowering
31	Umbel diameter	10 plants	Measurement	cm (integer)		The largest umbel at flowering

Plant		Carrot		82(08021)	Secondary essential character
No	Characters	No. of samples	Methods	Rank or measurement unit	Remarks
1	Resistance to bacterial blight	50 plants	Observation	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high	
2	Resistance to scab	50 plants	Observation	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high	
3	Resistance to soft rot	50 plants	Observation	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high	
4	Resistance to root knot nematode	50 plants	Observation	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high	

Plant		Carrot		82(08021)	Secondary optional character
No	Characters	No. of samples	Methods	Rank or measurement unit	Remarks
1	Field storage durability	50 plants	Observation	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high	The degree of field storage durability
2	Heat tolerance	50 plants	Observation	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high	The degree of heat tolerance
3	Growth ability under low temperature	50 plants	Observation	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high	Adaptability to low temperature
4	Growth ability under high temperature	50 plants	Observation	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high	Adaptability to high temperature

Plant		Carrot		82(08021)	Tertiary essential character
No	Characters	No. of samples	Methods	Rank or measurement unit	Remarks
1	Root weight	10 roots	Measurement	g (integer)	At harvest
2	Texture	10 roots	Observation	1:Extremely thin 2:Very thin 3:Thin 4:Slightly thin 5:Intermediate 6:Slightly thick 7:Thick 8:Very thick 9:Extremely thick	Evaluate sliced roots by a panel

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No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Carotene content of root	10 roots	Measurement	I.U. (integer)		Per 100 g
2	Lycopene content of root	10 roots	Measurement	I.U. (integer)		Per 100 g
3	Sugar content of root	10 roots	Measurement	% (integer)		With brix meter
4	Dry matter percentage of root	10 roots	Measurement	% (integer)		The ratio of dry matter to fresh weight is calculated
5	Aroma of root	10 roots	Sensory	1:Extremely weak 2:Very weak 3:Weak 4:Slightly weak 5:Intermediate 6:Slightly strong 7:Strong 8:Very strong 9:Extremely strong		Degree of aroma of carrot