

Plant		Broccoli		108(08013)	Primary essential character	
No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Angle of petiole	10 plants	Observation	3:Erect 4:Semi-erect 5:Intermediate 6:Semi-prostrate 7:Prostrate		At head emergence stage
2	Plant height	10 plants	Measurement	cm (integer)		At head emergence stage
3	Stem length	10 plants	Measurement	cm (integer)		From the base of stem to the bottom of curd at head emergence stage
4	Leaf length	10 plants	Measurement	cm (integer)		Of the largest leaf at head emergence stage
5	Leaf color	10 plants	Observation	3:Light green 4:Slightly light green 5:Green 6:Slightly dark green 7:Dark green		Of the largest leaf at head emergence stage
6	Curd shape	10 heads	Observation	1:Very flat 2:Flat elliptic 3:Flat elliptic pointed 4:Flat 5:Round 6:Pointed 7:Reverse conic 8:Reverse conic round top 9:Reverse conic pointed top		
7	Basic color of curd	10 heads	Observation	1:White 2:Green 3:Purple		
8	Curd greenness	10 heads	Observation	2:Yellowish green 3:Slightly yellowish green 4:Light green 5:Slightly green 6:Green 7:Dark green 8:Very dark green		
9	Curd purpleness	10 heads	Observation	3:Light purple 4:Slightly light purple 5:Purple 6:Slightly dark purple 7:Dark purple		Degree of anthocyanin pigmentation
10	Flower bud size	10 heads	Observation	3:Small 4:Slightly small 5:Intermediate 6:Slightly large 7:Large		
11	Curd stem length	10 heads	Measurement	cm (round to the 1st decimal place)		From the bottom of bud cluster to the cut end of stem at marketable size
12	Number of lateral curds	10 plants	Observation	0:Absent 1:Almost none 2:Extremely few 3:Very few 4:Few 5:Intermediate 6:Many 7:Very many		Of the marketable curds other than primary curd
13	Curd maturity	10 plants	Observation	1:Extremely early 2:Very early 3:Early 4:Slightly early 5:Intermediate 6:Late 7:Very late		For the summer-sowing cultivation in the flat areas of the Pacific coast of Honshu island

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1	Leaf width	10 plants	Measurement	cm (integer)		Of the largest leaf at head emergence stage
2	Leaf undulation	10 plants	Observation	0:Absent 1:Almost none 2:Extremely little 3:Very little 4:Little 5:Intermediate 6:Much 7:Very much		At the largest leaf at head emergence stage
3	Stem width	10 plants	Measurement	cm (round to the 1st decimal place)		At the thickest part of stem at head emergence stage
4	Number of lateral shoots	10 plants	Measurement	(integer)		Shoots sprouting from the base of stem at harvesting stage
5	Leaf number	10 plants	Measurement	(integer)		Leaves attached at harvesting stage
6	Leaf shape	10 plants	Observation	1:Linear 2:Lanceolate 3:Reverse lanceolate 4:Long ovate 5:Reverse long ovate 6:Ovate 7:Reverse ovate 8:Elliptic		Of entire mature leaf at harvesting stage
7	Leaf tip shape	10 plants	Observation	3:Pointed 4:Slightly pointed 5:Intermediate 6:Slightly round 7:Round		Of the largest leaf at head emergence stage
8	Leaf cupping	10 plants	Observation	3:Reverse cupped 4:Slightly reverse cupped 5:Flat 6:Slightly cupped 7:Cupped		Observe the center of the largest leaf at head emergence stage
9	Leaf incision	10 plants	Observation	0:Absent 1:Almost none 2:Extremery few 3:Very few 4:Few 5:Intermediate 6:Many 7:Very many		Of the largest leaf at head emergence stage
10	Leaf pigmentation	10 plants	Observation	0:Absent 1:Almost none 2:Extremery few 3:Very few 4:Few 5:Intermediate 6:Many 7:Very many		Degree of anthocyanin coloration, at heading stage
11	Leaf wax	10 plants	Observation	0:Absent 3:Very little 4:Little 5:Intermediate 6:Much 7:Very much		Of the upper surface of leaf at head emergence stage
12	Smoothness of curd surface	10 plants	Observation	3:Very smooth 4:Smooth 5:Intermediate 6:Rough 7:Very rough		At harvesting stage
13	Curd width	10 heads	Measurement	cm (round to the 1st decimal place)		Of the primary curd of the main stem

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14	Curd height	10 heads	Measurement	cm (round to the 1st decimal place)		Of the primary curd of the main stem
15	Curd vortex	10 heads	Observation	3:Slight 4:Slightly slight 5:Intermediate 6:Slightly prominent 7:Prominent		
16	Thickness of stem in curd	10 heads	Measurement	mm (integer)		At the middle point of the stem
17	Color of stem (surface) in curd	10 heads	Observation	1:Purple tinted 2:Purple tinted-White 3:White 4:White-Pale green 5:Pale green 6:Pale green-Green 7:Green		
18	Hardness of stem in curd	10 heads	Sensory	3:Soft 4:Slightly soft 5:Intermediate 6:Slightly hard 7:Hard		Observed hardness of outer layer of stem at the bottom of harvested curd
19	Curd exposure	10 plants	Observation	3:Hidden 4:Slightly hidden 5:Intermediate 6:Slightly exposed 7:Exposed		Appearance of curd by horizontal eye point (relative height of curd to upper leaves) at harvesting stage
20	Color of stem (section) in curd	10 heads	Observation	2:Extremely pale green 3:Very pale green 4:Pale green 5:Slightly pale green 6:Light green 7:Slightly green 8:Green		Observed transverse section of stem
21	Occurrence of hollow stem in curd	10 heads	Observation	3:Infrequent 4:Slightly infrequent 5:Intermediate 6:Slightly frequent 7:Frequent		Observed transverse section of stem at the cut end of harvested curd

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1	Occurrence of curd leafing	20 plants	Observation	3:Infrequent 4:Slightly infrequent 5:Intermediate 6:Slightly frequent 7:Frequent		
2	Early flowering in curd	10 plants	Observation	3:Infrequent 4:Slightly infrequent 5:Intermediate 6:Slightly frequent 7:Frequent		
3	Vernalizing temperature	20 plants	Observation	2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high	Very low:5 centi degree, rather low:13 centi degree, rather high:17 centi degree, very high:22 centi degree, (daily lowest temperature)	
4	Fusarium yellow resistance	20 plants	Observation	3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High	Evaluated by natural occurrence or artifitial inoculation	
5	Black rot resistance	20 plants	Observation	3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High	Evaluated by natural occurrence or artifitial inoculation	

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1	Curd buttoning	20 plants	Observation	3:Infrequent 4:Slightly infrequent 5:Intermediate 6:Slightly frequent 7:Frequent		
2	Cold tolerance	20 plants	Observation	3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High		Evaluated by the degree of cold injury of leaves in winter
3	Curd growth under low temperature	20 plants	Observation	3:Poor 4:Slightly poor 5:Intermediate 6:Slightly vigorous 7:Vigorous		Evaluated by curd growth in autumn to winter
4	Heat tolerance	20 plants	Observation	3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High		Evaluated by the degree of plant and curd growth in hot season
5	Water excess tolerance	20 plants	Observation	3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High		Evaluated by the degree of growth disturbance by the excess of soil water
6	Drought tolerance	20 plants	Observation	3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High		Evaluated by the degree of growth disturbance due to the shortage of soil water
7	Winter sowability	20 plants	Observation	0:Low 9:High		Adaptability to sowing in October - November in flat areas along the Pacific coast of Honshu, Japan
8	Spring sowability	20 plants	Observation	0:Low 9:High		Adaptability to sowing in January - March in flat areas along the Pacific coast of Honshu, Japan
9	Boron deficiency	30 plants	Observation	3:Very frequent 4:Frequent 5:Intermediate 6:Infrequent 7:Almost never		Evaluated by natural occurrence
10	Molybdenum deficiency	30 plants	Observation	3:Very frequent 4:Frequent 5:Intermediate 6:Infrequent 7:Almost never		Evaluated by natural occurrence
11	Downey mildew resistance	30 plants	Observation	3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High		Evaluated by natural occurrence
12	Diamondback moth resistance	30 plants	Observation	3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High		Evaluated by natural occurrence

Plant		Broccoli		108(08013)	Tertiary essential character	
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1	Total weight of curd	10 plants	Measurement	g (integer)		Total weight of marketable curds per plant

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1	Total weight of lateral curd	10 plants	Measurement	g (integer)		Total weight of marketable lateral curds per plant
2	Shelf life of curd	10 plants	Observation	3:Short 4:Slightly short 5:Intermediate 6:Slightly long 7:Long		Evaluated by discoloration etc.
3	Curd quality	10 plants	Observation	3:Poor 4:Slightly poor 5:Intermediate 6:Good 7:Excellent		Evaluated by color, shape, solidness, thickness, etc.