

Plant		Sunflower		482	Primary essential character	
No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Attitude of tillers	Block	Observation	0:Absent 1:Erect 3:Semi-erect 4:Almost semi-erect 5:Intermediate 6:Semi-spreading 7:Spreading 9:Prostrate		
2	Leaf shape	Block	Observation	1:Elliptic 2:Lanceolate 3:Triangular 4:Heart shaped 5:Round 6:Linear		
3	Plant height	10 plants	Measurement	cm (integer)		Length from ground to the base of head
4	Head angle	Block	Observation	1:Upward 2:Slightly upward 3:Horizontal 4:Slightly downward 5:Downward		Observe direction of 1/3 of tubulous flowers bloom
5	Head shape	Block	Observation	1:Concave 2:Flat 3:Convex 4:Round		Shape of transversal section of tubulous flowers
6	Head size	Block	Measurement	cm (round to the 1st decimal place)		Diameter of basal part of head
7	Seed shape	Block	Observation	1:Elongated 2:Ovoid 3:Ovoid wide 4:Rounded 5:Horned		A full of shape
8	Mottling of seeds	Block	Observation	0:Absent 9:Present		Pigmentation of mottlings on seed surface
9	Flowering time	Block	Observation	date		The day when 40-50% of tubulous flowers bloom
10	Harvest time	Block	Observation	date		The day when the back side of 80-90% of heads turn yellow

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1	Stem width	10 plants	Measurement	cm (round to the 1st decimal place)		Stem diameter at half of plant height
2	Stem color	Block	Observation	3:Light 4:Slightly light 5:Intermediate 6:Slightly dark 7:Dark		Degree of stem greenness
3	Pubescence at stem	Block	Observation	0:Absent 1:Almost none 3:Very little 4:Little 5:Intermediate 6:Much 7:Very much 9:Extremely much		Observe surface of 5 cm below head flower just before flowering
4	Type of branching	Block	Observation	1:Basal 2:Top 3:Full branch with central head 4:Full branch		
5	Length of leaf blade	10 plants	Measurement	cm (round to the 1st decimal place)		At flowering, the longest ordinate length of the largest leaf
6	Width of leaf blade	10 plants	Measurement	cm (round to the 1st decimal place)		At flowering, the widest abscissa length of the largest leaf
7	Leaf color	Block	Observation	3:Light green 5:Green 7:Dark green		
8	Pubescence on leaf	Block	Observation	1:Almost none 3:Very little 4:Little 5:Intermediate 6:Much 7:Very much 9:Extremely much		Observe adaxial surface of fully developed leaf
9	Leaf serration	Block	Observation	3:Very little 4:Little 5:Intermediate 6:Much 7:Very much		
10	Leaf wing	Block	Observation	0:Absent 9:Present		
11	Petiole length	10 plants	Measurement	cm (round to the 1st decimal place)		At flowering time
12	Petiole width	10 plants	Measurement	mm (round to the 1st decimal place)		Of the central part of petiole at flowering time
13	Petal width	10 plants	Measurement	cm (round to the 1st decimal place)		Width of the longest petal
14	Petal length	10 plants	Measurement	cm (round to the 1st decimal place)		Length of the longest petal
15	Number of petals	10 plants	Measurement	petals/plant (integer)		

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No	Characters	No. of samples	Methods	Rank or measurement unit	Remarks	
16	Width of seed	20 seeds	Measurement	mm (round to the 1st decimal place)	At the widest part	
17	Length of seed	20 seeds	Measurement	mm (round to the 1st decimal place)	Of the longest part	
18	Thickness of seed	20 seeds	Measurement	mm (round to the 1st decimal place)		
19	Mottling of seeds	Block	Observation	0:Absent 9:Present		

Plant		Sunflower		482	Secondary essential character
No	Characters	No. of samples	Methods	Rank or measurement unit	Remarks
1	Lodging tolerance	Block	Observation	1:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 9:Very high	At the appropriate time for observation. Very high:<=5%, high:5-24%, intermediate:25-49%, low:50-74%, very low:>=75%
2	Resistance to sclerotima rot	Block	Observation	1:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 9:Very high	At the appropriate time for observation. Very high:<=5%, high:5-24%, intermediate:25-49%, low:50-74%, very low:>=75%
3	Resistance to soft rot	Block	Observation	1:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 9:Very high	At the appropriate time for observation. Very high:<=5%, high:5-24%, intermediate:25-49%, low:50-74%, very low:>=75%
4	Resistance to gray mold	Block	Observation	1:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 9:Very high	At the appropriate time for observation. Very high:<=5%, high:5-24%, intermediate:25-49%, low:50-74%, very low:>=75%

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1	Resistance to leaf spot	Block	Observation	1:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 9:Very high		At the appropriate time for observation. Very high:<=5%, high:5-24%, intermediate:25-49%, low:50-74%, very low:>=75%
2	Resistance to stem spot	Block	Observation	1:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 9:Very high		At the appropriate time for observation. Very high:<=5%, high:5-24%, intermediate:25-49%, low:50-74%, very low:>=75%
3	Resistance to downy mildew	Block	Observation	1:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 9:Very high		At the appropriate time for observation. Very high:<=5%, high:5-24%, intermediate:25-49%, low:50-74%, very low:>=75%
4	Resistance to rust	Block	Observation	1:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 9:Very high		At the appropriate time for observation. Very high:<=5%, high:5-24%, intermediate:25-49%, low:50-74%, very low:>=75%

Plant		Sunflower		482	Tertiary essential character	
No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Seed yield	Block	Measurement	kg/a (round to the 1st decimal place)		Seed yield excluding immature seeds
2	Oil content	Block	Measurement	% (round to the 1st decimal place)		By Soxhlet method
3	1000 seed weight	3 replications	Measurement	g (round to the 1st decimal place)		Calculate from numbers of 50 g riped seeds
4	Kernel percentage	10 g	Measurement	% (round to the 1st decimal place)		After removing pericarp, kernel weight/seed weight x 100
5	Fatty acid composition in oil (oleic acid)	0.1 g	Measurement	% (round to the 1st decimal place)		Measure oleic acid in oil by Gas chromatography
6	Fatty acid composition in oil (linoleic acid)	0.1 g	Measurement	% (round to the 1st decimal place)		Measure lenoleic acid in oil by Gas chromatography
7	Tocophenol content	0.5 g >	Measurement	mg/100g (round to the 1st decimal place)		Measure tocophenol by High Performance Liquid Chromatograph

Plant		Sunflower		482	Tertiary optional character	
No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Volume weight	3 replications	Measurement	g (integer)		Seed weight of one liter
2	Head weight	Block	Measurement	kg/a (round to the 1st decimal place)		Dry weight of heads
3	Stem and leaf weight	Block	Measurement	kg/a (round to the 1st decimal place)		Dry weight of stems and leaves
4	Specific gravity of oil	25-50 g	Measurement	* (round to the 3rd decimal place)		
5	Refraction rate	0.05 g	Measurement	* (round to the 3rd decimal place)		
6	Iodine index	0.2 g	Measurement	* (integer)		
7	Oxidation value	20 g	Measurement	* (round to the 2nd decimal place)		