

Plant		Soybean		430	Primary essential character	
No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Main stem length	10 plants	Measurement	cm (integer)		Length from the cotyledon node to the top node of the main stem
2	Number of main stem nodes	10 plants	Measurement	* (round to the 1st decimal place)		Total number of nodes on the main stem from the cotyledon node to the top node
3	Leaflet shape	Block	Observation	3:Lanceolate 5:Triangular 7:Pointed ovate 9:Rounded ovate		Applies to the criterion of UPOV
4	Flower color	Block	Observation	1:White 9:Purple		Color of blooming flowers
5	Hypocotyl color	Block	Observation	1:Green 9:Purple		Color of hypocotyl at VC stage
6	Seed-coat color	Block	Observation	1:Yellowish white 2:Yellow 3:Pale green 4:Green 5:Pale brown 6:Brown 7:Black 8:Mottle		Seed-coat color at post-maturity. The lighter color is the base color in the case of mottle seed-coats.
7	Secondary seed coat color (mottled)	Block	Observation	1:Yellowish white 2:Yellow 3:Pale green 4:Green 5:Pale brown (tan) 6:Brown 7:Black 8:Other		
8	Hilum color	Block	Observation	2:Light buff 3:Buff 4:Brown 5:Dark brown 6:Green 7:Dark gray 8:Black 9:Other		
9	Cotyledon color	Block	Observation	2:Yellow 9:Green		Color of peeling of the cutting phase of cotyledon
10	Flowering time	Block	Observation	date		Date on which about 50% plants have bloomed
11	Maturing time	Block	Observation	date		Date on which 80-90% pods of all plants have turned into mature pod color
12	Seed size	100 seeds	Measurement	g (round to the 1st decimal place)		Mean seed weight based on 100 mature seeds with two replications
13	Growth type	Block	Observation	3:Determinate 4:Semi-determinate 5:Medium 6:Semi-indeterminate 7:Indeterminate		Applies to the criterion of UPOV
14	Seed coat luster		Observation	3:Weak 5:Medium 7:Strong 9:Waxy		

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15	Pubescence		Observation	1:Present 9:Absent	
16	Number of lateral leaflet		Observation	3:Trifoliolate 5:5-foliolate 7:7-foliolate	

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1	Number of branches	10 plants	Measurement	* (round to the 1st decimal place)		Number of branches with two nodes or more
2	Pubescence color	Block	Observation	1:Gray 8:Tawny (Brown)		Pubescence color in the growing period
3	Ratio of number of pods with ≥ 3 seeds to total number of pods	10 plants	Measurement	1:Low 5:Medium 9:High		Ratio of number of pods with 3 seeds or more to total number of pods
4	Pod color	Block	Observation	3:Light 5:Medium 7:Dark		Color of pod at maturity
5	Seed shape	100 seeds	Observation	2:Spherical 4:Spheroidal flattened 6:Elongate 8:Elongate flattened		Applies to the criterion of UPOV
6	Hight of the lowest stem node with pod	10 plants	Measurement	cm (integer)		Height from the cotyledon node to the node of the lowest pod

Plant		Soybean		430	Secondary optional character	
No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Resistance to soybean mosaic virus (A strain)	10 plants	Measurement	0:Weak 9:Strong		Score based on the rate of diseased plants inoculated. Weak:>=51%, re-examination:11-50%, strong:<=10%
2	Resistance to soybean mosaic virus (A2 strain)	10 plants	Measurement	0:Weak 9:Strong		Score based on the rate of diseased plants inoculated. Weak:>=51%, re-examination:11-50%, strong:<=10%
3	Resistance to soybean mosaic virus (B strain)	10 plants	Measurement	0:Weak 9:Strong		Score based on the rate of diseased plants inoculated. Weak:>=51%, re-examination:11-50%, strong:<=10%
4	Resistance to soybean mosaic virus (C strain)	10 plants	Measurement	0:Weak 9:Strong		Score based on the rate of diseased plants inoculated. Weak:>=51%, re-examination:11-50%, strong:<=10%
5	Resistance to soybean mosaic virus (D strain)	10 plants	Measurement	0:Weak 9:Strong		Score based on the rate of diseased plants inoculated. Weak:>=51%, re-examination:11-50%, strong:<=10%
6	Resistance to soybean mosaic virus (E strain)	10 plants	Measurement	0:Weak 9:Strong		Score based on the rate of diseased plants inoculated. Weak:>=51%, re-examination:11-50%, strong:<=10%
7	Resistance to soybean cyst nematode (race)	10 plants	Measurement	1:Very weak 3:Weak 5:Medium 7:Strong 9:Very strong		Score based on the parasitic index. Very weak:>=66%, weak:41-65%, medium:21-40%, strong:1-20%, very strong:0%
8	Resistance to soybean dwarf virus	10 plants	Measurement	3:Very weak 4:Weak 5:Medium 6:Strong 7:Very strong		Score based on the rate of diseased plants. Very weak:>=65%, weak:50-64%, medium:35-49%, strong:10-34%, very strong:<=9%

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9	Resistance to purple seed stain	200 plants	Measurement	1:Very low 3:Low 5:Intermediate 7:High 9:Very high		Score based on the rate of disease seeds with stained area in 2 mm width and more. Very low:>=31%, low:16-30%, high:1-5%, very high:=0%
10	Lodging resistance	Block	Measurement	1:Very weak 3:Weak 5:Medium 7:Strong 9:Very strong		Score based on the rate of plants lodged at 60 degrees angle and more at maturity. Very low: 75% , low:=50-75%, medium:25-50%, strong:1-25%, very strong:0%
11	Resistance to pod shattering	50 pods per 5-10 plants	Measurement	3:Facile 5:Medium 7:Difficult		Score based on the rate of shattering pods after heat and dry treatment. Weak:>=51%, medium:21-50%, strong:<=20%
12	Resistance to peanut stunt virus (PSV)	10 plants	Measurement	0:Weak 9:Strong		Score based on the rate of diseased plants inoculated. Weak:>=51%, re-examination:11-50%, strong:<=10%. The used isolate is clarified.
13	Resistance to southern bean mosaic virus (SBMV)	10 plants	Measurement	0:Weak 9:Strong		Score based on the rate of diseased plants inoculated. Weak:>=51%, re-examination:11-50%, strong:<=10%. The used isolate is clarified.
14	Resistance to pigmentation on hilum periphery	6 plants	Measurement	3:Weak 5:Medium 7:Strong 9:Very strong		Score based on the degree of the seed with pigmentation on hilum periphery, after 14 days chilling treatment at flowering period.
15	Chilling tolerance	10 plants	Measurement	3:Very weak 4:Weak 5:Medium 6:Strong 7:Very strong		Score based on the degree of yield-reduction, after 28 days chilling treatment at flowering period.

Plant		Soybean		430	Tertiary essential character
No	Characters	No. of samples	Methods	Rank or measurement unit	Remarks
1	Seed yield	Block	Measurement	3:Very few 4:Few 5:Medium 6:Many 7:Very many	Degree of seed weight (kilogram per are) based on comparing with standard cultivars. Very few:<=80%, few:81-90%, medium:91-110%, many:111-120%, very many:>=121%
2	Protein content		Measurement	% (round to the 1st decimal place)	Rate of dry weight of seed (N x 6.25). The analysis method is clarified.
3	Oil content		Measurement	% (round to the 1st decimal place)	Rate of dry weight of seed. The analysis method is clarified.

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1	Resistance to seed coat cracking	200 seeds	Measurement	3:Facile 5:Medium 7:Difficult		Score based on the rate of coat cracking seeds. Facile:'>=15%, medium:6-14%, difficult:'<=5%
2	Lipoxygenase isozymes (L-1, L-2, L-3)		Measurement	1:Absence of L-1, -2 & -3 2:Absence of L-1 & -2 3:Absence of L-1 & -3 4:Absence of L-2 & -3 5:Absence of L-1 6:Absence of L-2 7:Absence of L-3 8:Presence of L-1, -2 & -3		Analysis with SDS-PAGE or Carotene breaching tests
3	7S globulin subunit		Measurement	1:Absence of a, a' & b 2:Absence of a & a' 3:Absence of a & b 4:Absence of a' & b 5:Absence of a 6:Absence of a' 7:Absence of b 8:Presence of a, a' & b 9:Others		Analysis with SDS-PAGE
4	11S globulin subunit		Measurement	1:Absence of I, IIa & IIb 2:Absence of I & IIa 3:Absence of I & IIb 4:Absence of IIa & IIb 5:Absence of I 6:Absence of IIa 7:Absence of IIb 8:Presence of I, IIa & IIb		Analysis with SDS-PAGE
5	Isoflavone content		Measurement	mg/100g (integer)		Rate of dry weight of seed. The analysis method is clarified.
6	Saponin isozymes (group A)		Measurement	2:Aa 3:Ab 4:Ac 5:Ad 6:Ae 7:Af 8:Other		Analysis with TLC or HPLC
7	Calcium content		Measurement	mg/100g (integer)		Rate of dry weight of seed. The analysis method is clarified.
8	Phosphorus content		Measurement	mg/100g (integer)		Rate of dry weight of seed. The analysis method is clarified.
9	Sucrose content		Measurement	mg/100g (round to the 1st decimal place)		Rate of dry weight of seed. The analysis method is clarified.
10	Lutein content		Measurement	mg/100g (round to the 1st decimal place)		Rate of dry weight of seed. The analysis method is clarified.
11	Tocopherol content		Measurement	mg/100g (round to the 1st decimal place)		Rate of dry weight of seed. The analysis method is clarified. Fill in contents in order of