

**Table 1. List of descriptors for chickpea**

Descriptor number	Descriptor	Descriptor state	Recording stage	Remarks	Previous descriptor state/ recording stage*
1	Accession number				
2	Variety group	1 desi 2 kabuli 3 intermediate			
3	Anthocyanin pigmentation on collar region	0 Absent  1 Present	Seedling stage	<b>New trait added</b>	
4	Plant pigmentation	1 No anthocyanin, stem and leaves light green 3 No anthocyanin, stem and leaves green 5 Low anthocyanin, stems lightly purple 7 High anthocyanin, stems and leaves mostly purple 9 Highly purple	Before flowering		
	Plant hairiness	3 Pubescent  5 Moderately pubescent 7 Densely pubescent	Same can be recorded on stem and pod	<b>Trait deleted</b>	
5	Stem hairiness	3 Pubescent  5 Moderately pubescent 7 Densely pubescent	Before flowering	<b>New trait added</b>	
6	Leaf hairiness	3 Pubescent  5 Moderately pubescent 7 Densely pubescent	Before flowering	<b>New trait added</b>	
7	Pod hairiness	3 Pubescent  5 Moderately pubescent 7 Densely pubescent	Before flowering	<b>New trait added</b>	
8	Leaf type	1 Normal (uni-imparipinnate)  2 Simple (not differentiated into leaflets) 3 Multipinnate (leaf lamina differentiated more than once)	Before flowering		
9	Number of leaflets per leaf	1 <7 2 7-8 3 9-10 4 11-12 5 >13	Pre-flowering stage taking third leaf from the top on main stem	<b>Added growth stage for recording observations</b>	
10	Leaflet margin <sup>2</sup>	1 Entire and smooth	Before flowering		

Descriptor number	Descriptor	Descriptor state	Recording stage	Remarks	Previous descriptor state/ recording stage*
		2 Serrated			
11	Days to 50% flowering	Number of days from sowing to 50% plants flowered	At flowering		
12	Days to maturity	Number of days from sowing to almost complete (physiological maturity) maturity i.e. when pods turn yellow	At maturity		
13	Flower color	1 Blue (violet-blue group 97B) 2 Light blue (violet-blue group 97C) 3 Dark pink (red-purple group 64D) 4 Pink (red-purple group 63D) 5 Light pink (red-purple group 69C) 6 White (white group 155D) 7 White-pink striped (white group 155D, red-purple group 63D)	At flowering		
14	Number of flowers per peduncle	1 Single flower 2 10-30% peduncles bear two flowers 3 2-5% peduncles bear 2-3 flowers	At flowering	Trait, number of flowers/pods per peduncle modified	
15	Number of pods per peduncle	1 Single pod 2 10-30% peduncles bear two pods 3 2-5% peduncles bear 2-3 pods	At flowering	Trait, number of flowers/pods per peduncle modified	
16	Growth habit (See fig.) <sup>2</sup>	1 Prostrate, main branches angle >80° 2 Spreading, main branches angle ca.75 3 Semi-spreading, main branches angle ca. 60° 4 Semi-erect, main branches angle ca. 45° 5 Erect, main branches angle <40°	At flowering stage	Modified previous recording stage* to record data for growth habit at flowering stage instead of mid pod-filling stage	Mid pod-filling stage
17	Plant canopy height	From ground to top of the canopy	Pod set stage		
18	Plant canopy width	Average spread of ten representative plants of each accession, recorded in centimeters. Should be measured from soil surface	Pod set stage		
19	Number of branches	1 Basal primary branches 2 Basal secondary branches 3 Apical primary branches	At harvest		

Descriptor number	Descriptor	Descriptor state	Recording stage	Remarks	Previous descriptor state/ recording stage*
		4 Apical secondary branches 5 Tertiary branches			
20	Number of pods per plant	Count of total pods at maturity	At harvest		
21	Pod length	Actual length	At harvest	<b>Modified previous descriptor state*</b>	3 Short, <15 mm 5 Medium, 15-20 mm 7 Long, >20 mm
22	Pod diameter	Actual diameter taken from the centre of the pod	At harvest	<b>New trait added</b>	
23	Pod dehiscence	0 Absent 1 Present	At harvest	<b>Modified previous descriptor state*</b>	1 <10% dehiscence 2 >10% dehiscence
24	Number of seeds per pod	Average number over 10 pods	At harvest		
25	Seed shape (see fig.)	1 Angular (ram's head shape - most desi types) 2 Owl's head shape (kabuli types) 3 Pea seed shaped (intermediate types)	At harvest		
26	Seed testa texture (see fig.)	3 Smooth (pea seed shaped)  5 Rough 7 Tuberculated (sticky surface)	At harvest		
27	Seed testa color (refer RHS Color codes)	1 Black (black group 202A, 202B; brown group 200A)  2 Brown (greyed-orange group 177B) 3 Light brown (greyed-orange group 177C) 4 Dark brown (greyed-orange group 177A) 5 Reddish brown (greyed-orange group 166C) 6 Greyish brown (brown group 200D) 7 Salmon brown (greyed-orange group 165C) 8 Grey (greyed-green group 196A) 9 Brown beige (greyed orange group 173D) 10 Beige (greyed-orange group 165D) 11 Yellow (greyed-orange group 164B) 12 Light yellow (greyed-orange group 164C)	In laboratory atleast two months after harvest.	<b>Modified previous recording stage* to record data atleast two month after harvest. As this trait is viable at harvest, therefore, sufficient time should be given for recording so that the colour become stable.</b>	In laboratory

Descriptor number	Descriptor	Descriptor state	Recording stage	Remarks	Previous descriptor state/ recording stage*
		13 Yellow brown (greyed-orange group 165C) 14 Orange yellow (greyed-orange group 168D) 15 Orange (greyed-orange group 168C) 16 Yellow beige (orange-white group 159C) 17 Ivory white (orange-white group 159C) 18 Green (greyed-green group 191A; grey group 201A) 19 Light green (greyed-green group 193B) 20 Variegated 21 Black brown mosaic (black group 202A; greyed-orange group 177E)			
28	Black dots on testa	0 Absent + Present	In laboratory		
29	100-seed weight (g)	For desi Desi small <15g/100 seed wt Desi medium >15-20 Desi large >20-30 Desi extra large >30 For kabuli kabuli small <25 g/100 seed wt kabuli medium >25-35 kabuli large >35-45 Kabulixtra large >45	In laboratory, measured at 10% (air-dry) moisture content	Modified previous descriptor state*	Measured at 10% (air-dry) moisture content
30	Biological yield (kg/ha)	Total weight of hand-pulled plants at harvest (maturity)	At maturity		
31	Yield plant <sup>-1</sup> (g)	Average weight of seeds collected from ten representative plants	Post harvest	New trait added	
32	Yield plot <sup>-1</sup> (kg/ha)	Total seed weight of all the plants in the plot and calculating yield in kg per hectare	Post harvest		
33	Protein content [%DW]	Whole seed crude protein using the dyebinding method or automatic protein analyser	Post harvest		
	Abiotic stresses				
34	Frost	Score on 1-9 scale, where 1 Highly tolerant 3 Tolerant 5 Moderately tolerant 7 Susceptible 9 Extremely susceptible		Modified previous descriptor state*	Susceptibility score 1-9, where 1 Very low 3 Low 5 Intermediate 7 High 9 Very high

Descriptor number	Descriptor	Descriptor state	Recording stage	Remarks	Previous descriptor state/ recording stage*
35	Drought	Score 1-9 as for 'Stress-Frost'			
36	Low iron	Score 1-9 as for 'Stress-Frost'			
37	Soil salinity	Score 1-9 as for 'Stress-Frost'			
	Biotic stresses				
	Diseases				
38	Alternaria blight ( <i>Alternaria alternata</i> )	Score on 1-9 scale, where 1 Highly resistant 3 Resistant 5 Moderately resistant 7 Susceptible 9 Highly susceptible		Modified previous descriptor state*	Susceptibility score 1-9, where 1 Very low 3 Low 5 Intermediate 7 High 9 Very high
39	Ascochyta blight ( <i>Ascochyta rabiei</i> )	Score 1-9 as for 'Alternaria blight'			
40	Grey mould ( <i>Botrytis cinerea</i> )	Score 1-9 as for 'Alternaria blight'			
41	Fusarium wilt ( <i>Fusarium oxysporum</i> f.sp. <i>ciceris</i> )	Score 1-9 as for 'Alternaria blight'			
42	Root rot ( <i>Fusarium solani</i> )	Score 1-9 as for 'Alternaria blight'			
43	Dry root rot ( <i>Rhizoctonia bataticola</i> )	Score 1-9 as for 'Alternaria blight'			
44	Collar rot ( <i>Sclerotium rolfsii</i> )	Score 1-9 as for 'Alternaria blight'			
45	Chickpea stunt virus (Bean leafroll virus (Luteovirus)) Insect-pests	Score 1-9 as for 'Alternaria blight'			
46	Leaf miner ( <i>Liriomyza cicerina</i> )	Score 1-9 as for 'Alternaria blight'			
47	Pod borer ( <i>Helicoverpa armigera</i> )	Score 1-9 as for 'Alternaria blight'			
48	Rootknot nematode ( <i>Meloidogyne incognita</i> )	Score 1-9 as for 'Alternaria blight'			
49	Cyst nematode ( <i>Heterodera ciceri</i> )	Score 1-9 as for 'Alternaria blight'			